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Food Habits—An Anthropologist's View[1]

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IN ONE OF the oil-rich countries of the Middle East, an American company became concerned about the inadequate nutrition of its Arab workers. As a means of increasing efficiency, but also with praiseworthy interest in improving the lot of the inhabitants of the country, the company decided to provide one nutritious meal for each worker on the job. A nominal charge, far below the cost of the meal, was to be charged. A well equipped cafeteria was built, and the program was inaugurated. The company felt, at the very least, that it would gain the good will of the workers. To its dismay, the result was the direct opposite. The workers expressed extreme displeasure over the arrangements, maintaining that this was another example of insulting American behavior—an expression of the belief that the workers were inferiors who need not be treated with dignity. Dismayed by this reaction, the company investigated to find out what had gone wrong. The answer proved to be the cafeteria pattern of providing the food. In this country, only beggars stood in line to be fed. Asking the workers to pass through the cafeteria line was insulting them by implying that they were beggars, without self-respect, dependent on the company for a hand-out.

Another illustration of Arab attitudes toward food is the rather amusing story of a newly arrived diplomat from one of the Middle Eastern countries who attended an elaborate Washington dinner. After the affair was over, the man implored another Arab who was familiar with the United States to take him someplace where he could eat; he was famished. The experienced Arab laughed and said, "Don't you know that when you say 'no, thank you,' Americans assume that you do not want what has been offered." It is good manners for a guest at an Arab dinner to refuse the food offered to him while the host implores him again and again to eat. Finally, the guest succumbs to the host's pleading. The Arab had refused each course at the banquet, as his code of manners dictated, only to find that it was removed by the waiters who accepted his refusal as final (1).

Next I should like to describe two incidents involving public health projects. As part of a program for improving health in the underdeveloped countries, some American educational films were sent abroad. One film showing how to bathe a baby in a bathinette horrified a group of mothers in India who maintained that American parents were guilty of cruelty for bathing infants in stagnant water instead of in running water. A UNESCO publication *Cultural Patterns and Technical Change* (2), edited by Margaret Mead, describes the following experience of a public health nurse who had been attempting to persuade a group of Mexican immigrant mothers in the United States to abandon their customary diet and to feed their babies milk. She had been violently condemning their traditional diet, but finally, when she discovered that she was making no progress, she suggested that they feed their babies the water in which their beans were cooked. The babies began to thrive, and when the nurse later pointed out to the mothers the supposed effects of the bean-water, they replied: "Oh, but we are feeding them milk now, too. We have followed your advice about the milk ever since you stopped calling our own food bad."

Understanding and Respecting Others' Cultures

All of these incidents are tied together by a common thread. They all involve misunderstandings based on the failure to understand and respect a different way of life. Anthropologists call such a way of life a "culture." They have devoted many years of study to describing hundreds of distinct cultures throughout all the continents. One conclusion of all this research may be simply summarized by saying that the people of different societies live, to some degree, in separate cultural worlds. This statement, i.e., there are tremendous gulfs separat-

[1]Presented before the Ohio Dietetic Association in Cincinnati, on May 6, 1960.

ing people, tends to be resisted by many, especially Americans, who want to believe that "people are pretty much alike wherever you find them."

Recognizing the significance of cultural differences, for one thing, means that much effort must be made to understand the other fellow. It is much easier to react to values and attitudes that do not agree with ours by classifying such behavior as "crazy," "illogical," or "stupid." If people are different, it is because they have misunderstood reality. Our own view, of course, is the "correct" version of the real situation. This attitude is characteristic of most people in almost all societies, but the study of anthropology seems to indicate that it is responsible for many failures in intercultural relations.

Let us briefly summarize some anthropologic conclusions about culture. It consists of values, attitudes, habits, and customs that are acquired by learning. This learning starts with the earliest experiences of the child. Much of it is not deliberately taught by anyone. Some of it is largely unconscious because it is so thoroughly internalized. Culture, the anthropologist believes, goes deep.

There are certain general similarities in all cultures because all human beings must solve certain fundamental problems of existence. They all must eat, drink, protect themselves from the elements, cooperate—minimally at least—with others, face the terrors of illness and death, and so on. The ways in which these needs are met, however, may vary greatly from one culture to another.

The fact that culture is learned means that it is subject to change, and this is the most optimistic fact about human behavior. Some relatively superficial aspects of culture change readily; other parts, especially basic values and beliefs, change more slowly and sometimes only with great difficulty. Many people who see American Indians working in varied occupations, speaking English and wearing standard clothing, are surprised to read anthropologic testimony to the effect that many of the basic values and beliefs of their Indian heritage have remained intact to this day, and in some cases, are growing stronger. Public attention recently has been directed to a revival of their ancient religious practices by several Indian groups.

Problems in Changing Cultures

Much effort in the modern world is being devoted to attempts to deliberately change certain patterns of culture. The anthropologist recognizes that this can be done successfully, but he insists that it is a mistake to think that mere good intentions are enough to do the job. If we desire to introduce change in people's behavior, we will be wise to study carefully the existing cultural beliefs before undertaking the project. One should not be surprised to encounter opposition. To successfully introduce significant cultural changes increasingly demands special training and a willingness to do research—a kind of "social engineering" as it has been called. Without this, disillusionment and failure are likely to result.

One further comment of a general sort should be made. Many people who accept the significance of cultural differences among distinct societies will balk at recognizing the same principle within one society. Social research has demonstrated the existence of many significant cultural differences within modern American society. These sub-cultural variations may be regional, religious, rural as contrasted with urban, occupational, or based on social class differences, to name only a few of the most important. Thus the necessity of considering cultural differences when trying to bring about a change of behavior within our own society is as pressing as when we are dealing with a foreign society.

Food Habits—A Part of Culture

Let us now turn directly to the subject of food habits viewed as part of culture. "Food" is always defined culturally. The same plant may be defined as edible by one society, inedible by another. The pig is clearly not a food animal in a Jewish or Moslem country. Increasing the supply of cattle in Hindu territory will not improve the diet of the people. These definitions of food, of course, have no reference to the nutritional value of the material. It seems likely that all societies ignore certain plants or animals in their environment that possess nutritional value. Even our own science-based society ignores certain items having nutritional value that are eaten by other societies. The point seems obvious: food is primarily a matter of cultural definition for most people, with the possible exception of specialists in the nutritional area. Nutritional studies may overlook certain items of diet having important food value because the cultural background of the expert does not include them.

The cultural aspects of food do not merely involve definition as such. There is also a considerable symbolism associated with particular items of the diet. Mead has said: "In most societies, food is the focus of emotional associations, a channel for interpersonal relations, for the communication of love or discrimination or disapproval; it usually has a symbolic reference." (2). Food habits apparently become quite deeply imbedded in the personalities of people raised in a particular cultural pattern. One evidence of this is the sacred symbolism frequently associated with food; almost all religions of the world have certain rituals involving special foods. The sharing of food almost uni-

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versally symbolizes a rather high degree of social intimacy and acceptance. In many simple societies, the climax of the wedding ceremony comes when the bride and groom jointly eat certain special foods. Eating together is a widespread social lubricant in our own society in all classes and regions.

Food in Family Relationships

One reason for the tenacity of food habits is their association with family sentiments. Food is one of the basic media through which attitudes and sentiments are communicated to the child. Mother receives her definition for the child in association with feeding experiences. The family meal situation is one of the most important events in producing morale or a sense of unity. The roles of close relatives, father, brother, sister, grandmother are clearly illustrated for the child as the family eats together. Certain foods eaten early in life become associated with these family sentiments, thereby acquiring the power to trigger a flood of affectionate childhood memories. The family eating together, in privacy, also becomes a major value in some societies. Late in World War II, after the liberation of Greece, some direct food relief was provided for the inhabitants. It was observed that most residents of Athens preferred to eat cold food in their unheated houses than hot food in warm soup kitchens (2).

The point, I think, is clear. Some foods in all societies become the focus of deep and persistent sentiments that have little connection with nutritional value. When we condemn a person's undesirable food habits, we may be degrading his mother's memory and his nostalgic vision of his childhood family. Such symbolism attaches not only to specific foods, but to certain meals as well.

Food may be eaten at certain times of the day primarily for satisfying hunger; other meals have a strong symbolic content. The family sentiment associated with "dinner" in our society is much stronger than that associated with "lunch" for most people. The pattern of dinner is more complex; the symbolism is more obvious. If we wish to understand fully the dietary culture of any group, we must study the patterning of meals and the meaning of each meal in the life of the people. The patterns of choosing, preparing, and consuming food must be fitted into the total pattern of the culture.

Significance of Culture to Food Specialists

What is the significance of all this for modern food specialists? Science and its method are a part of our culture. The development of a science of foods has meant rapid growth in our knowledge of the nutritional requirements for health. Since health is a major value of our culture, dietitians feel that it is their duty to transfer this knowledge to people who lack an optimal diet. The achievement of this objective frequently involves a change in food habits. Let us attempt to connect up the previous comments on culture with attempts to introduce dietary change.

If members of our own group have certain deficiences in their usual diet, it may be relatively easy to bring about improvement. If the people concerned are middle class, urban Americans who have been reared to respect science and accept its results, there may be little difficulty in introducing a new food into their diet. The problem may be merely a tactical one: what means of communication —radio, television, or magazines—should be used to achieve the desired results? We are dealing, in this case, with people who share to a substantial degree the dietitian's own set of values and attitudes toward food and health.

However, the problem of changing food habits becomes more complex when the values of the people to be influenced are different from those of the dietitian. Americans of lower socio-economic class or recent immigrants of diverse ethnic backgrounds may not have familiarity with, or respect for, science. Other values may be more important than good diet. The bare announcement that changing certain food habits will improve health may not carry much weight. When workers who traditionally ate a diet of beans and pork, when available, obtained jobs in war industry at the end of the Great Depression, their increased affluence did not automatically lead to a better diet, even if educational programs were developed to inform them. A radio or a flashy used car frequently had a higher priority in their scheme of values than a healthful diet. We may disagree with such a set of values, but criticism will not yield the desired result. If we wish to improve diet in this kind of situation, we must attempt to understand the food culture of the people involved.

Symbolism of Food

What is the symbolism associated with important foods? What qualities of these foods have value for the people who consume them? Much effort has been expended in certain parts of Asia trying to correct the dietary deficiency resulting from overwhelming reliance on polished rice. The attempt has largely failed because the *whiteness* of the rice is highly valued, leading to a rejection of much more healthful unpolished rice. Similarly, introducing wheat in the form of dark bread leads to rejection, while white bread is accepted in these areas. Recognition of the cultural value of whiteness can lead to experimentation which may produce

an acceptable type of rice which still contains the vital nutritional values. The general conclusion to be drawn from hundreds of such examples from different countries, as well as from different classes or ethnic groups in the United States, is that it is important to try to bring about changes that are in keeping with the established food habits of the people and which are acceptable within the framework of their value system. A corollary proposition is: criticism of the nutritionally inadequate foods is likely to arouse stubborn opposition based on deep-rooted sentiments associated with such foods, which will compound the difficulty of introducing change. The aim of the dietitian should be to set up a situation in which people will pleasantly and easily eat the right foods.

Introducing change in food habits may also require an understanding of the symbolic aspects of the different meals. Change probably can be more easily introduced in a meal which is not the focus of deep family sentiments than in one which is. In urban areas, lunch may be a more opportune time to introduce dietary improvements than dinner. In rural areas, where the main family meal is sometimes served at noon, supper may offer the least resistance. The patterning of one meal may be significant. If one type of food is traditionally regarded as of major importance, change can probably be more easily introduced in the subsidiary elements of the meal.

Use Caution in Changing Cultural Factors

Anthropologists who have studied numerous cases of cultural change would add a word of caution, even where modifications are successfully introduced. There is always danger that the expert will introduce changes largely on the basis of his own cultural experiences. This may lead to a failure to recognize the total patterning of the culture which is being modified. As a consequence, a change introduced to produce improvement may result in unforeseen difficulties. A quotation from the UNESCO publication previously mentioned illustrates the point (2): "We upset dietary balance by persuading Spanish-American school children in New Mexico to eat white bread instead of cold corn *tortillas*, when their main source of calcium came from the lime-water in which the corn of the *tortillas* had been soaked. We persuaded their mothers to substitute canned spinach for wild greens, and, when there was no money to buy spinach, the children went without greens." To emphasize the point again: every culture has pattern or organization, and unless we understand the cultural context of food habits, we may, with the best of intentions, introduce harmful disruptions.

Summary

My assignment has been to discuss food habits in general rather than concrete terms. I have no special competence in the area of dietetics. I have been using the approach that an anthropologist would take to any aspect of culture. Dietitians are confronted by diverse food habits in concrete terms. You are faced with the important task of improving the dietary practices of the American public. I hope that my remarks, which are not intended to tell you how to solve specific problems, may be useful in giving you something to think about—a point of view.

Trying to help people, for their own good, may sometimes be a frustrating business. They may stubbornly oppose efforts made for their benefit. Familiarity with the facts of culture helps one to avoid disillusionment. Change is possible, but it is frequently not accomplished easily. Human beings are exasperating creatures. The anthropologist is convinced, however, that their apparently illogical behavior is understandable when we become familiar with their cultural assumptions. Stupid, illogical *individuals* may resist our attempts to improve them in *all* cultures, but *groups* of people are never stupid or illogical. If we encounter group opposition to change, it is because a cultural difference is involved which demands an objective attempt to understand rather than condemn.

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(1) HALL, E. T., JR.: Orientation and training in government for work overseas. Human Organization 15: No. 1, 1956.

(2) WORLD FEDERATION FOR MENTAL HEALTH: Cultural Patterns and Technical Change. Mead, M., ed. Tensions and Tech. Ser. No. 8. Paris, France: UNESCO, 1953. (Available in U.S. from: Intl. Documents Serv.,. Columbia Univ. Press, N. Y. 27).

Function of Medical Staff Committees

The organization of the medical staff and assignment of responsibilities at Maimonides Hospital of Brooklyn are described in the June 1960 issue of *Trustee* (Vol. 13, p. 14), by J. A. Katzive, M.D., Executive Director. The purpose and function of five major medical staff committees and seven others are outlined. The function of the dietary committee is stated as follows: "This committee serves in an advisory capacity to the dietitian in the preparation of the diet manual and acts on all matters referred to it by the medical board relating to special diets and dietary problems in the medical care of the patient. The dietitian usually is an ex-officio member and serves as its secretary."

An Epidemiologic Diet Study in North Dakota[1]

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MANY investigators have implicated dietary fat in the development of atherosclerosis and its chief complication, coronary heart disease. The evidence presented is mainly of two types: (a) observations that the incidence of coronary heart disease is high in populations where fat makes up a high percentage of calories or where the ratio of saturated to certain unsaturated fats is high and (b) observations that serum cholesterol is related to the incidence of coronary heart disease and that serum cholesterol can be manipulated by changes in dietary fats. No experimental studies with human beings have been reported in which it has been shown that changes in dietary components alter the probabilities of developing coronary heart disease. Nor have any studies been reported showing a difference in dietary habits between persons developing coronary heart disease and the population in which they live.

If diet is an important etiologic factor in the development of coronary heart disease, it would be expected that those who develop the disease would have a dietary history which differs from that of the general population. This hypothesis was tested in a study of coronary heart disease in a six-county area of northeastern North Dakota conducted by the Heart Disease Control Program of the U.S. Public Health Service and the North Dakota Department of Health, in cooperation with the North Dakota Heart Association, the Grand Forks Medical Society, and the Second District Medical Society. Some of the results of this study have already been reported (1, 2). One of the objectives was to determine by interviews the characteristics of persons who develop coronary heart disease as contrasted with the characteristics of the general population. This is a report on some of the dietary aspects of this study.

During 1957, physicians practicing in the six-county area or serving this area made reports to a central study committee on all the men they saw who were thirty-five years of age and over who had new or recurring manifestations of coronary heart disease (except recurring angina pectoris). The composition of this committee and the review procedures have been reported elsewhere (2). For each case reported, two age-matched controls were randomly selected from a probability sample of all men thirty-five years of age and over living in the study area and having neither a history of coronary heart disease nor symptoms suggesting its presence. The probability sample from which controls were selected had been identified in a health survey conducted in November 1956. During 1957, a detailed dietary history was obtained for both the case and the control groups.

Dietary Interview and Assessment Methods

Standardized methods for assessing food habits in epidemiologic studies have not yet been developed. Investigators have had varying objectives and have studied divergent population groups under varied circumstances. Methods used for collecting dietary information must be adjusted, therefore, to a total study plan which includes many factors other than diet. Thus the method of collecting dietary data was tailored to the particular project.

Since the patients reported to have coronary heart disease may, as a result of their illness, have changed their diets through medical advice or on their own initiative, it was decided that interviews would be most meaningful if they were based on food habits prior to illness. The dietary history covered the four weeks just before the coronary attack for "case subjects," and before the interview for the controls. A span of four weeks was believed to be long enough to include foods usually eaten and short enough to permit fairly accurate recall. Ad-

[1]Received for publication March 28, 1960.

[2]Present address: Research Division, Cleveland Clinic.

mitting inherent difficulties in recalling and recording dietary data, it was nevertheless expected that any gross differences between the diets of the case and control groups would be apparent. There was no intention to compare individual dietary histories with medical status.

The nutritionist who helped plan the dietary studies consulted home economists at the University of North Dakota, the North Dakota Agricultural College, and clinic dietitians in the area about food habits of the general population of North Dakota. She also obtained local recipes, especially for Scandinavian dishes, since many of the inhabitants are of Scandinavian origin. A dietitian, native to the area, was recruited and assigned to the research project by the North Dakota Department of Health. She helped develop and pretest the dietary history schedules and conducted all interviews.

The dietary interview-questionnaire finally developed required about 45 min. to administer and was in two parts. The first part, one page, provided space for the recording of a typical day's meal pattern, including between-meal snacks. The second part, five pages, was a comprehensive check list of some 135 foods common to American diets, which included Scandinavian dishes popular in this region.

Since the study covered a full year, seasonal differences in dietary patterns were automatically included in the dietary histories of both case subjects and controls. An attempt was made at first to interview case subjects before they left the hospital, but this proved impractical. The effort of trying to recall foods eaten over a period of time proved exhausting during this stage of the illness. In addition, there were many unavoidable interruptions, especially on the wards. Finally, in some instances, the interviewer did not know about the case subjects until after they had left the hospital. Thus it was decided to interview all subjects at home.

For deceased case subjects, the wives or nearest of kin who had knowledge of their food habits were interviewed. The control subjects for these particular case subjects were treated in the same fashion, i.e., their wives or nearest of kin were interviewed.

In general, the interviewer was cordially received. After a brief explanation of the purpose of the visit, the interviewer obtained information similar to that taken in the health survey the previous November, which had required about 20 min. Then she began the dietary interview by asking the respondent about his usual meal pattern. This information was not actually used in the dietary calculations but helped establish rapport and oriented the respondent to the subject of food intake. He was then asked to think back to the four weeks just preceding his illness (for case subjects) or prior to the interview (for controls), and to try to remember whether he had eaten the foods about which she inquired.

For each food eaten during the four weeks, the respondent was asked how often he ate it and the usual size of portions. He was asked whether he had eaten any foods not inquired about during this time. If he had, these foods were recorded. Special attention was given to the amount and kinds of fat used on food or in its preparation. Often the wife or other person responsible for preparing the meals was consulted about food preparation.

The daily average intake for each subject, based on foods recalled, was calculated for calories, animal and vegetable protein, animal and vegetable fat, carbohydrates, cholesterol, total saturated fatty acids, total unsaturated fatty acids, three essential fatty acids, vitamins, and minerals. The food value tables used for these calculations were compiled by nutritionists at the Harvard School of Public Health and included the fatty acid content of foods as reported by Hayes and Rose (3). Sources of fat in the diet and percentage of fat supplied by individual foods or food groups were also computed.

Findings

Dietary histories were obtained and dietary intake computed for 162 out of a total of 228 subjects suffering coronary heart disease during the study year. For 20 case subjects who died there was no one from whom dietary information could be obtained; for 42 case subjects, the dietary information obtained was incomplete or was considered unsatisfactory; 4 refused to cooperate.

The response rates for control and case subjects were similar. Of a total of 395 control subjects, 11 could not be contacted, chiefly because they had moved or died since they were enumerated in November 1956; 71 gave incomplete or unsatisfactory dietary information; 13 refused to be interviewed. The number of controls actually providing satisfactory dietary information and the number shown in Tables 1 and 2 differ because it was necessary to drop some control subjects and to use some more than once, so as to match each case subject satisfactorily interviewed with two control subjects of similar age.[3]

The ages of the case and control subjects ranged from thirty-seven to eighty-five years, with a mean age of sixty-one years. From data obtained by interview, the mean height without shoes for case subjects was 68.8 in. and the mean weight without heavy clothes was 177 lb. The mean height for controls was 69.0 in., the mean weight, 175 lb. The differences in height and weight between case and control subjects are not statistically significant.

In Table 1 are compared nutrients calculated for case subjects with those calculated for age-matched controls for four classes of disease. No significant

[3]Actually, twenty-eight control subjects who were satisfactorily interviewed were not used, although fifty-two control subjects were used twice.

TABLE 1 Analysis of diets of case and control subjects classified according to diagnosis (data presented as means)

DIETARY FACTOR	ALL CORONARY HEART DISEASE		CASES WITHOUT PREVIOUSLY DIAGNOSED MANIFESTATION OF CORONARY HEART DISEASE		ALL MYOCARDIAL INFARCTIONS OR CORONARY OCCLUSIONS		MYOCARDIAL INFARCTIONS OR CORONARY OCCLUSIONS WITHOUT PREVIOUSLY DIAGNOSED MANIFESTATION OF CORONARY HEART DISEASE	
	162 case subjects	324 control subjects	117 case subjects	234 control subjects	94 case subjects	188 control subjects	64 case subjects	128 control subjects
Calories per day	2831 ± 1006*	2782 ± 817*	2961 ± 1046*	2819 ± 810*	2750 ± 1032*	2792 ± 828*	2905 ± 1085*	2819 ± 814*
Grams fat per day	141 ± 55	140 ± 46	149 ± 57	142 ± 46	135 ± 56	141 ± 46	143 ± 57	143 ± 46
Per cent of calories from fat	44.8 ± 4.9	45.3 ± 5.1	45.3 ± 4.9	45.3 ± 5.1	44.2 ± 4.9	45.5 ± 5.0	44.3 ± 4.7	45.7 ± 5.1
Per cent of total fat made up of saturated fatty acids	41.8 ± 4.7	41.8 ± 4.7	41.7 ± 4.2	42.0 ± 4.3	41.9 ± 4.9	42.1 ± 5.0	41.6 ± 4.0	42.4 ± 4.4
Ratio of unsaturated to saturated fatty ac ds	1.22 ± 0.22	1.19 ± 0.23	1.22 ± 0.23	1.24 ± 0.23	1.23 ± 0.25	1.23 ± 0.23	1.23 ± 0.25	1.23 ± 0.25
Ratio of linoleic acid to saturated fatty acids	0.19 ± 0.07	0.19 ± 0.09	0.19 ± 0.07	0.18 ± 0.08	0.20 ± 0.07	0.19 ± 0.09	0.20 ± 0.07	0.19 ± 0.09
Per cent of calories from protein	15.2 ± 2.4	15.0 ± 2.4	15.0 ± 2.2	15.1 ± 2.5	15.1 ± 2.5	14.9 ± 2.5	14.8 ± 2.0	15.0 ± 2.6
Per cent of total fat made up of animal fat	84.8 ± 9.7	86.2 ± 9.4	85.2 ± 9.5	86.4 ± 9.1	84.2 ± 10.5	86.6 ± 9.9	84.6 ± 10.3	86.6 ± 10.3

*Standard deviation.

differences, either in a statistical or a clinical sense, appear for any nutrients for any of the classes of disease shown.

Calories averaged about 2800 per day for both case and control subjects with approximately 45 per cent of the calories supplied by fat. The distribution of the per cent of calories supplied by fat was quite similar for case and control subjects, as is shown in Figure 1. Here, data are shown for all case subjects and their controls. Approximately two-thirds of each group fell in the 40 to 50 per cent range. The distribution of average caloric intake per day was also similar for case subjects and their controls as Figure 2 indicates.

In Table 2, the sources of fat in the diets of the case subjects and their controls are compared. These, too, were much the same. Dairy products, excluding butter, made up a slightly smaller proportion of the total fat intake for the case subjects than for controls, while baked goods contributed slightly more to the total fat intake of case subjects as compared with controls. None of the differences is statistically significant.

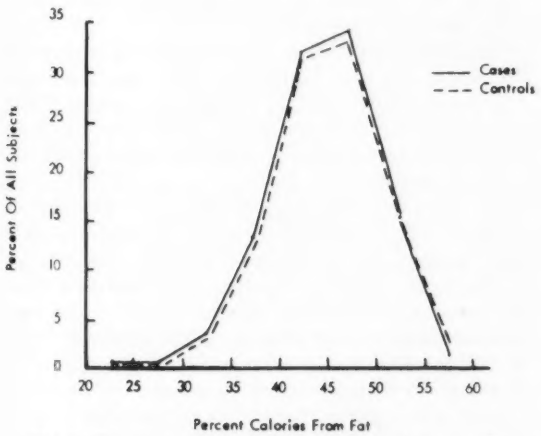

FIG. 1. *Per cent of calories supplied by fat*

Discussion

It is clear that the composition of the diets calculated for case subjects and for the age-matched controls selected at random from the population that produced these case subjects did not differ in any important respect. Thus, the hypothesis that persons in the United States who develop coronary heart disease have a dietary history which differs from that of the general population must be rejected.

Is it probable that diet really differs in the two groups and that failure to find the difference is due to imperfections in the methods that were used to determine diet composition? The answer to this question requires scrutiny of the methods used and the possibility that unintentional biases were serious enough to invalidate the results.

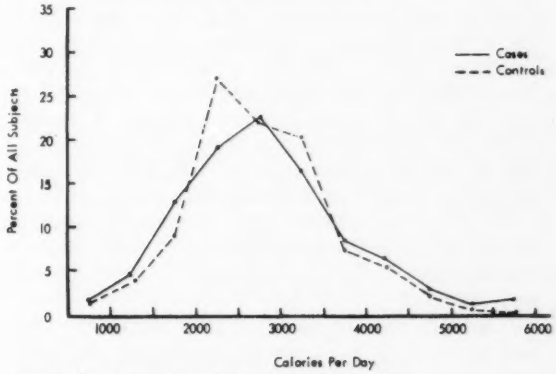

FIG. 2. *Average caloric intake per day*

TABLE 2 **Sources of fat in diets of case and control subjects**

SOURCE OF FAT	MEAN DAILY FAT INTAKE		PER CENT OF TOTAL FAT INTAKE	
	Case subjects	Control subjects	Case subjects	Control subjects
	gm.	*gm.*		
Meats—beef, lamb, pork, fowl, fish	47.7	46.7	33.7	33.3
Dairy products (excluding butter)—milk, cream, cheese, ice cream	25.2	26.4	17.8	18.8
Butter	22.5	23.3	15.9	16.6
Other fats—margarine, hydrogenated shortening, salad dressing	9.1	8.5	6.4	6.1
Baked goods—cakes, hot breads, pies	15.6	13.3	11.0	9.5
Breads and cereals	5.5	5.5	3.9	3.9
Eggs	6.0	5.5	4.2	3.9
Fruits and vegetables	0.3	0.4	0.2	0.2
Nuts and peanut butter	1.5	1.4	1.1	1.0
Miscellaneous—sauces, candy, cake frostings, popcorn, potato chips	8.0	9.1	5.7	6.5
Total fat intake	141.4	140.1	100.0	100.0

As described earlier, the dietary patterns recalled for subjects who had suffered coronary heart disease were for a period ending some time before the interview. In some instances, this was as much as five or six months. Under these conditions, the kinds, frequency, and amounts of foods eaten may have been reported inaccurately. For the control subjects, the dietary period was for the four weeks immediately preceding the interview, and for this group better data were probably obtained. If the case subjects had been reported more promptly, and if they could have been interviewed in the hospital, data about them and about the control subjects might have been more comparable. It is not known, however, whether cases of coronary heart disease could be reported more promptly in a large-scale community study, and, as mentioned, hospital interviews did not prove feasible.

The original study plan also called for interviews of individuals alone. Supplemental information was to be obtained later from the person responsible for food preparation in the home. Attempts to obtain information from the case or control subjects in private were frequently unsuccessful. When others were present, the interviewer felt that it would be tactless and impractical to ask them to leave. Thus, the respondents were sometimes distracted or contradicted by other members of the family. While it is unlikely that this introduced bias in comparisons between the case and control subjects, it throws some doubt on the quality of the information obtained, and in addition caused data to be excluded where contradictions could not be resolved.

Possibly a serious problem, insofar as adequate testing of the hypothesis is concerned, was the failure to obtain dietary information for all of the 228 men who suffered coronary disease. As previously pointed out, some of those not interviewed had died and for them, no one could be located who could provide reasonably satisfactory information. In addition, for a sizable number of persons, information was incomplete. In many instances, individuals simply were unable to recall what they had eaten, while in others the interview was prematurely broken off. Similar problems were encountered in interviews with the controls subjects, except that a much smaller proportion had died.

The necessity for dietary recall, coupled with the length of the dietary interview in the North Dakota study, must be regarded as a serious handicap in epidemiologic studies where a prime requisite is information on all or nearly all of a defined population. While the study design called for comparing the dietary histories of all patients of coronary heart disease with those of the population (using a sample) which produced these cases, the study as actually carried out consisted of comparing a *proportion* of all cases with a *proportion* of the total population. Although a somewhat better response to the dietary interview might have been obtained had it not been preceded by the health interview, the inability of the respondents to recall diets for the specified period was probably a more important factor than the length of the interview.

The differences between the planned and executed study possibly could be critical. The reasons for failure to obtain information of unquestionable validity on all case and control subjects do not, of course, lie entirely with the planning and execution of the nutrition interview. In fact, in retrospect, it is not clear what modifications might have been introduced in the nutrition interview to make the data more meaningful. It *is* clear, however, that the establishment of dietary patterns under the conditions imposed by this study is a difficult matter and that precise measurement of dietary intake under these conditions may not be possible. Epidemiologic investigations involving dietary estimates may need to take a quite different form if more precision is to be introduced.

Whether the method for obtaining and calculating dietary intakes in the North Dakota study was sufficiently precise to test the proposed hypothesis adequately cannot be definitely established. It is the opinion of the investigators, however, that it was, and that in the geographic area studied, at least, the recent dietary habits of persons having heart attacks are not distinguishable from those of the general population. This is not to say, however, that they may not have had unusual lifetime dietary patterns. With currently available methods, it is unlikely that lifetime dietary habits will be measured for any sizable segment of our population.

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FAO Aids Child Feeding Program in Ethiopia

Investigations by the Food and Agriculture Organization, United Nations Children's Fund, and the World Health Organization in Ethiopia indicated a great need for a pre-school feeding program. Children were often breast fed long after their mothers could provide adequate nourishment, and there was no established infant diet to tide them over from breast-feeding to eating adult-type food.

Two years ago, Emmy Hookham, a Norwegian home economist with FAO, helped in starting a program to supplement infant diets. Eight centers at schools in and around Addis Ababa have been opened, to which mothers come to receive a week's ration of powdered milk and vitamin tablets for their infants. At the same time, they are given a demonstration on how to mix the powder and to prepare simple meals for their babies, such as cooked cereals, mashed vegetables, orange and tomato juice, and so on, with particular stress on the need to use clean boiled water.

Miss Hookham's work while in Ethiopia also involved school-age children. She introduced milk feeding in schools, and at present some 30,000 children receive a glass of milk each day. She points out, "This is a particularly interesting development in Ethiopia, which is rich in cattle. At first, officials wanted to know why we should introduce milk feeding in view of the number of cattle in the country. We pointed out that the average yield of milk per cow in Ethiopia was about 1 qt. per day and that most of the milk was processed into butter and cheese.

"The children liked the milk very much and both the teachers and officials then saw the value of the program, which we linked closely with that of the Ministry of Agriculture, which is developing dairy farming in the country."

One problem concerned with food and nutrition in Ethiopia is the frequency of fast days in the Coptic year. Children may eat milk, eggs, and meat on only 105 of the 250 days a year they attend school. On the other days, the diet is restricted to vegetables and cereals. Despite this limiting factor, however, teachers have reported a general improvement in the health of children included in the nutritional program, with a resultant improvement in their ability to cope with their school work.

One part of the program which has been especially successful has been the promotion of vegetable gardening among the children. "Carrots were an outstanding success," Miss Hookham has reported. "In fact, they became so popular we had to guard the gardens to stop the children from pulling them up before they had time to grow to a reasonable size." As a result of Miss Hookham's work, more than a hundred Ethiopian schools now have vegetable gardens, and gardening has become part of the regular curriculum in all primary schools and has been added to the curricula of training schools and colleges for teachers. With school gardening it has been possible to introduce nourishing vegetables into the Ethiopian diet where hitherto, apart from meat, only onions, lentils, a local type of cabbage, and a few other indigenous plants were eaten. Beans, several types of cabbages, carrots, lettuce, and tomatoes are now being successfully grown.

II. One to Seven Years after Surgery

Nutrition Following Gastric Resection[1]

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PREVIOUS PAPERS have described (1, 2) a progressive dietary regimen used immediately following gastrectomy and have carried the recommendation that every effort be made to help these patients establish a dietary pattern as nearly normal as possible.

A number of reports in the literature present evidence that a diversity of problems face many of the patients who have experienced this type of surgery. The late or continued appearance of the "dumping syndrome" and a failure to gain weight have been two of the handicaps mentioned.

For the treatment of the dumping syndrome, Hayes recommended (3) a high-fat, high-protein diet with a maximum exclusion of carbohydrate. A caloric ratio of carbohydrate, protein, and fat of 1:1.5:5 was advised and he stated that dietary instructions at the time of discharge from the hospital should be of this type as a reasonable preventive measure. This dietary regimen departs radically from the usual food intake of the individual.

Pittman and Robinson reported (4) 80 per cent success in relieving the dumping syndrome with a three-step, strict dietary regimen and the avoidance of all sweets, ice cream, chocolate, and milk, which they consistently found were not tolerated. Their diets contained increased amounts of fat and protein, little and sometimes no carbohydrate.

The patient with the dumping syndrome may need more than dietary treatment alone. Haubrich believed (5) that dumping was more apt to be seen in the "asthenic, nervous, sensitive and anxious," than in the more stable individual. Rosenberg concluded (6) that the dumping symptoms were more marked during emotional stress than during periods of calm.

In an attempt to evaluate the nutritional status of a representative group of post-gastrectomy patients (Billroth I and vagotomy), personal interviews were conducted with eighty-nine individuals, one to seven years after surgery. Eleven others participated in the study by mail. Observations were made by a surgeon, a psychiatrist, and a dietitian.

Data were obtained concerning weight before and after surgery as well as daily routines, such as lying down after meals, bowel habits, appetite, food intake, food intolerances, or noted dietary problems.

The ninety men and ten women interviewed came from all walks of life, and the majority had returned to their jobs. All were able to carry on their usual activities. The age range was from twenty-six to seventy-seven years, with a median of fifty-three years.

The amount of stomach resected as estimated at surgery ranged from a 45 to 60 per cent resection with two having a more radical 85 per cent resection (Table 1). The trend toward a smaller resection or hemigastrectomy and vagotomy is a recent one (three to five years), as it is believed that the patient has a better late postoperative course and fewer nutritional complications than when a greater portion of the stomach has been removed. Since this study included so few patients with greater than a 65 per cent resection, no comparisons can be made on the basis of the extent of the resection.

Weight Status

An evaluation of the weight status required the adoption of standards. At the time of the follow-up interview, 54 per cent had gained weight, 9 per cent had maintained their pre-operative weight, and 37 per cent had lost weight following surgery.

Zollinger has pointed out (7) that weight gain or loss *per se* may not be of significance. Due to the nature of the bland diet frequently used in ulcer management, some patients gain weight before surgery. A postoperative weight loss might indicate

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TABLE 1 Percentage of stomach removed during gastrectomy

DEGREE OF RESECTION	NUMBER OF PATIENTS
30 to 40 per cent	2
45 to 50 per cent	49
55 to 60 per cent	35
65 to 70 per cent	11
75 to 80 per cent	1
85 per cent	2

a return to normal in these cases. Others may have lost weight with their ulcers and regained this weight postoperatively. A third group was composed of individuals habitually below their "desirable weight," even in good health.

Using the Metropolitan Life Insurance tables for standards of "ideal" weight (8, 9), Table 2 shows that 67 per cent of the recalled patients were at or above this weight. Thirty-three per cent were below this level at the time of the interview. Five of these, however, had never reached their desirable weight at any time pre-operatively, and thus perhaps could not be expected to attain it after a gastrectomy. Of the thirty-three patients below desirable weight, six (18 per cent) had a resection greater than 60 per cent. Eight of the fourteen patients with resections greater than 60 per cent were at or above their desirable weight at the time of the interview.

Appetite, Size and Number of Meals

During the interview, each patient was asked to rate his own appetite as excellent, good, fair, or poor. These statements were later compared with food intake records. Twenty-seven per cent believed they had excellent appetites, 50 per cent good, 15 per cent fair, and only 8 per cent rated their appetites as poor.

Appetite is probably a major determinant of the quantity of food eaten. The fact that so many of these individuals believed they had a good appetite seemed to indicate a wholesome attitude toward food. Appetite and weight appeared to be related. Of the fifteen who rated their appetites as fair, one-third were below their desirable weight while all of the eight with poor appetites were underweight.

The food intake records served as sources of information classified by the interviewing dietitian. Large meals were eaten by 6 per cent of the patients, normal sized meals by 70 per cent, and small meals by 24 per cent. It appeared that by the end of the first postoperative year, the majority were able to eat meals of normal size.

Appetite and meal size did seem to be related. Twenty-three patients had fair to poor appetites and twenty-four ate small meals. Approximately two-thirds of these were the same individuals.

All but eleven patients ate three meals a day. Ten of these omitted breakfast. Eating between meals was reported by practically everyone, and 41 per cent were eating two or more snacks daily.

TABLE 2 Weight of patients at follow-up interview

WEIGHT LEVEL	NUMBER OF PATIENTS
At or above desirable weight	67
1 to 10 per cent below	22
11 to 20 per cent below	10
21 to 30 per cent below	1

Food Intolerances

Seventy-four per cent reported that they were able to eat anything they desired or had only a few unimportant aversions (Table 3). Sixteen per cent indicated some evidence of digestive disturbance or intolerance to as many as six to ten foods, while approximately 10 per cent had severe food intolerances and evidence of some degree of dumping syndrome. Foods mentioned as objectionable are shown in Table 3.

These do not confirm the observations of Eichorn (10) and other investigators who have reported that most patients cannot tolerate milk and milk products after gastrectomy. Fifty-nine per cent of the patients in this study were including milk in their daily diets. Those who were not drinking milk gave various reasons, such as not caring for it, tired of milk from ulcer diets, preferring other beverages. Only 17 per cent actually believed they had an intolerance for milk.

Other Factors

The practice of lying down after meals has been recommended frequently as palliative for persons experiencing postprandial discomfort. Over half of the subjects of this study reported that they lay down after meals during the first few months at home, and 26 per cent were continuing this practice at the time of the follow-up. However, they seemed to consider this more or less a habit and not directly related to food intolerance.

Following gastrectomy with vagotomy, some patients develop changes in patterns of elimination. Constipation was conspicuous by its absence in this group, while 31 per cent reported loose stools or occasional diarrhea in varying degrees of severity. Most cases were not serious.

The patients' suggestions on eating following a gastrectomy were solicited. The most frequent comment was to "experiment or try" things gradually to see what could be eaten. Others mentioned "eating smaller quantities of food" at first, being careful not to overeat, and "eating more often." Some patients ate anything they wanted as soon as they were discharged from the hospital, and the majority reported that they were eating normally by the end of six months.

TABLE 3 Food aversions of intolerances reported one to seven years after gastrectomy

FOODS	NUMBER OF TIMES MENTIONED
Ice cream	24
Pancakes with sirup	22
Candy	22
Cereal with sugar	18
Cake	17
Milk	17
Chocolate	16
Milkshake	15
Pie	15
Coffee	8
Custard and pudding	7
Other desserts (Jello, eclair)	6
Sugar	5
Carbonated beverages	3

Psychiatric Interviews

In his psychiatric interviews, Rond (11) used the approach that the surgery was only one experience in the multiplicity of life's interactions to which the person responds. He stated that emotional factors played a vital part in the patient's symptoms before and after surgery and that the patient's reaction to his operation was an important factor in the postoperative results. Emotional factors were active in the aggravation of ulcer symptoms, in bringing the individual to the operation, in producing the dumping syndrome, and in the complaint of postoperative pain.

He reported that an individual with a stable personality could be expected to have good results, whereas an emotionally unstable personality could expect poor results postoperatively. However, changes in the individual's life could change what seemed to be a poor result into a good one.

Intensive Study of Ten Patients

The interviewers agreed that the majority of these post-gastrectomy patients were happy, useful individuals. However, attention was focused on those who were rated underweight in an attempt to shed some light on the possible cause or causes of the persistent failure to gain weight. Had they failed to gain because they were handicapped by their surgery, because of lack of appetite, because of unwise dietary practices, or because of inadequate absorption due to an increased rate of passage through the intestinal tract?

The dietitian found nine men and one woman whose weight gain had been unsatisfactory living within a radius of 100 mi. of Columbus, and a program of personal contact was planned. Three visits were made to the home of each individual at four-week intervals. Information concerning the many factors influencing weight was obtained. Age, activity, smoking, and coffee drinking habits, as well as food intakes and problems were observed. The transit time of food through the intestinal tract was measured by giving carmine capsules once each week for three successive weeks.

An attempt was made to increase the total caloric intake by whatever means seemed most applicable to the individual. Some of the patients agreed to try larger amounts of food; more butter, nuts, or milk; a bedtime snack; or increased between-meal snacks. Patients consuming large quantities of salads and low-calorie foods were encouraged to substitute a few more concentrated items.

Results were quite variable. One man with a normal rate of passage (28, 24, and 32 hr.) added a regular breakfast to his dietary pattern and gained 5 lb. in eight weeks. Another with transit time of 26, 36, and 26 hr. added a bedtime feeding, made an effort to increase his food intake at other meals, and achieved a gain of 4 lb. One man with transit times of 9¼, 11¾, and 23¼ hr. increased his milk and dessert intake and gained 4 lb. At the extreme opposite was a woman who ate no breakfast, drank no milk, and ate no desserts or pastries. Transit times were 1½, 2, and 24¼ hr. Attempts to increase her food intake were futile, and at the end of the eight-week observation period, she had gained no weight and there was no improvement in her eating pattern.

The accumulated results showed that of the ten individuals observed, two patients gained 5 lb., two gained 4 lb., three gained 1 lb., and three showed no weight gain.

Motivation was probably the most important factor influencing successful weight gain. The patients who became interested in gaining succeeded in altering or increasing their food intakes. When the caloric intakes increased, weight gain resulted, in spite of food intolerances, rapid rate of passage or other problems.

Summary and Conclusions

Personal interviews were conducted to evaluate the nutritional status of 100 post-gastrectomy patients at least one year after surgery. Results showed that 67 per cent were at or above their desirable weight level according to accepted standards. It appeared that by the end of the first postoperative year, the majority had no appetite problems and were eating meals of normal size. The few with fair to poor appetites were more apt to be eating smaller meals and to be below their desirable weight level.

This study revealed that 74 per cent of these patients were eating anything they wanted. A few reported food intolerances and varying degrees of "dumping syndrome." The patients stated that the most important considerations in eating after a gastrectomy were to consume smaller amounts and to eat more frequently at first and gradually to return to the usual dietary pattern.

An intensive study of ten patients who were below their desirable weight yielded varying results. Each was counseled to increase his caloric intake by whatever means was most applicable. Seven of the ten responded to individual counseling. Motivation appeared to be the important factor influencing successful weight gain.

In view of these observations, it seems unnecessary to send every post-gastrectomy patient home on a restricted diet since only a few may develop dietary problems.

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More Definitions of Dietitians

In the August issue of the JOURNAL, *we published four of the definitions submitted by the Association to the Department of Labor as suggestions for inclusion in the next revision of the* Dictionary of Occupational Titles. *The definitions for "dietitian, chief, executive"; dietitian, teaching"; "dietary consultant"; and "dietetic intern" follow. Those pertaining to nutritionists will be included in an early issue.*

DIETITIAN, CHIEF, EXECUTIVE—Administers, plans, and directs activities of the department providing quantity food service. Establishes policies and procedures. Provides administrative direction for menu formulation, food preparation and service, purchasing, sanitation standards, safety, and personnel utilization. Is responsible for financial management; maintains a system of records for planning and control. Selects the professional dietetic staff. Directs departmental programs of education. Coordinates interdepartmental professional activities and relationships. Serves as consultant to management in matters relating to dietetics.

DIETITIANS, TEACHING—Plans, organizes, and conducts educational programs in nutrition and/or management for dietetic interns, medical personnel, student nurses, patients, personnel, and auxiliary workers. Prepares manuals, brochures, course outlines, visual aids, and other materials used in teaching. Maintains liaison with colleges, universities, professional associations, and allied groups so that the educational programs are consistent with current trends. May engage in research.

DIETARY CONSULTANT—Advises and/or gives assistance on problems related to nutrition and management of food service to such public and private establishments concerned with group feeding as child care centers, hospitals, nursing homes, and schools. Plans, organizes, and conducts such educational activities as in-service training courses, conferences, and institutes. Develops and evaluates educational materials. Works with architects and equipment personnel on plans for building or remodeling food service units. May be designated INSTITUTIONAL-NUTRITION CONSULTANT when employed by a public health department to work on nutrition programs for institutions.

DIETETIC INTERN—A person who has a college degree with education in nutrition and management and is participating in a post-graduate program in fulfillment of professional requirements for dietetics. Learns through practice and classroom instruction under the direction of professionally qualified dietitians to perform duties and an understanding of the profession of dietetics. Dietetic internships may be in hospitals or other institutions approved by The American Dietetic Association.

I. With and Without One Year's Nutrition Instruction

How Nutrition Education Can Affect Adolescents' Food Choices[1]

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In this investigation nutrition education caused significant changes in food choices of young adolescent students. Improvements were reported after one year of nutritional instruction, based on appraised needs and planned with the students and their parents. Two years of nutrition education resulted in considerably higher dietary scores than only one year's instruction, although results were not consistently better.

THIS PAPER will present and discuss dietary data collected during a research project in nutrition. Data obtained in a preliminary survey indicated the dietary needs on which nutrition education programs were then developed and evaluated. No attempt is made here to describe those programs since they will be described in a later publication.

The purpose of this project was to discover whether nutrition education could help young adolescents make wise food choices. Data are limited to those collected in dietary surveys in September 1952 prior to the research period, during the research periods in May and September 1953, in May and September 1954, and after the research period in May 1955. The study was conducted in the public schools of Kansas City, Missouri.

This three-year study was based on the following assumptions: (a) Food choices of boys and girls in Kansas City, Missouri, do not differ significantly from those of children of other comparable communities in the United States. (b) Food choices of boys and girls in Kansas City, Missouri, were not as good as they might have been. (c) If nutrition education is based on problems revealed by dietary surveys, it may be expected to cause improvement in food choices.

Adolescent Participants

The boys and girls participating in this study were selected as a relatively homogenous group. At the beginning of the study, there were 445 pupils in the group. The control and research classes for two grades were carefully matched in as many respects as possible. They were selected on the basis of their parents' home ownership, occupation of the head of the household, and income. Another factor was considered: the students' achievement in selected subjects.

Initially 110 children in the sixth grade research and 120 in the sixth grade control classes participated. Of these, 65 in the research and 60 in the control classes remained throughout the three-year period, 1952-1955. There were 101 pupils in the seventh grade research classes and 114 in seventh grade control classes in 1952. Of these, 67 in the research classes and 72 in the control classes were followed for the two-year period, 1952-1954. Only the data from pupils who participated at each survey period for two or three years are presented.

A total of 264 children (132 research and 132 control) participated throughout the study. The age range of the children, as of September 1952, was

[1]Received for publication August 10, 1959.

[2]Dr. Pattric Ruth O'Keefe (now deceased) served as Co-Director of these studies with the author, from 1952 to 1955. Helen A. McManus served as Nutrition Consultant and Research Assistant during the time grants-in-aid from the Wheat Flour Institute and the National Dairy Council helped to support the research. Since 1955, data have been studied with the assistance of Elsie Janis Gibbens (now deceased), who was appointed Research Associate at the State University of Iowa during June and July 1956, 1957, and 1958.

between eleven and twelve years. There were approximately the same number of boys and girls.[3]

Dietary Survey Method

Dietary surveys were made to determine nutrition education needs or problems, not as an index of nutritional status. In September 1952, the pupils kept records on special forms of all food and liquids consumed during a seven-day period (1). These forms provided space for listing kinds and amounts of food eaten over a 24-hr. period for seven consecutive days. The teacher in each classroom assisted the pupils with the recording.

The dietary survey was repeated in May 1953 and in September and May of 1954 and 1955. After the survey was completed in May 1954 for the seventh grade and in May 1955 for the sixth grade, the records were checked to eliminate those of any pupils who were not available for all testing periods.

The records were evaluated qualitatively in terms of ten food groups: milk, eggs, non-citrus fruit citrus fruit, meat, cereal, butter and margarine, potatoes, green leafy vegetables, and other vegetables. (Intakes of such foods as cake, candy, pie, pickles, popcorn, potato chips, cookies, doughnuts, cinnamon rolls, sauces, gravy, salad dressings, and relishes were not considered, and no effort was made to evaluate caloric intake.)

The food groups used and the recommended servings per day were developed so that if the standards were met, the nutrients supplied would meet the 1953 Recommended Dietary Allowances of the National Research Council (2). These standards were:

Milk	4 glasses
Eggs	4 per week
Non-citrus fruit	1 serving
Citrus fruit	1 serving
Meat	1 serving
Whole grain and enriched cereal and bread	2 servings
Butter or margarine	2 servings
Potatoes	1 serving
Green leafy vegetables	1 serving
Other vegetables	1 serving

The number of servings from each food group was obtained for each pupil for the week; then, the total servings of each food group were determined for each class. The recommended servings per week for each food group, multiplied by the number of students in a class resulted in the total recommended servings for that class. This number divided into the number reported as consumed gave the percentage of the recommended amount eaten by that class.

Dietary data from the three sixth grade classes in the control schools were combined and treated as one composite control class. Data from the three seventh grade control classes were treated similarly.

Dietary data from each research class were treated separately, and each class was coded to indicate its grade (6th or 7th), its teacher (L, M, MA, P, B, or BL), and its school (R, N, or K).

When a class changed its teacher or school from one year to another, it was re-coded. For example: one class is designated as *L-6th (R)* the first year, then *P-6th (R)* the second year, and *O-6th (R)* the third year, with *L* representing the teacher the first year, *6th* the original grade level, and *(R)* the school. The same children were promoted to the seventh grade for the second year of the study and were taught by a different teacher, *P*. Although they were in the seventh grade during the second year, they were identified as "6th." Since they remained in the same school, *(R)* remained unchanged in the code. The same children were eighth graders for the third year of the study; they had no specifically planned nutrition education; and they had several teachers rather than one. Therefore, *O* was used in the code in place of the letter formerly assigned to a specific teacher. Again the children were identified as *"6th"* and the *(R)* was retained in an effort to identify the group, although they were in a high school and no longer attended the *(R)* school.

The Data

Dietary data based on 9142 24-hr. food intake records (1306 seven-day records) were collected.

Results of dietary surveys conducted at the beginning of the project (September 1952) indicated that research and control classes had the same basic eating patterns (Figs. 1 and 2). These data also showed that food choices of these children in Kansas City, Missouri, were similar to those of many other young adolescents in other parts of this country.

Surveys conducted at the end of the project (one year after nutritional instruction had ended) indicated that research and control classes maintained their general eating patterns, but that intakes of the food groups of the research classes more nearly approached recommended levels than did those of the control classes (Figs. 3 and 4).

Initial Dietary Intakes

The first dietary surveys indicated that the research and control classes were well matched with respect to their intakes of ten food groups. There were no significant differences (at the 1 per cent level of significance) in eight of the ten food groups (Table 1).

All classes initially reported intakes of meat greater than the recommended amount, but use of milk, eggs, butter or margarine, potatoes, and green leafy vegetables was less than the recommendations for all classes. Consumption of non-citrus fruit, citrus fruit, meat, and other vegetables was greater

[3]The number of children dropped from the study—about 40 per cent—was not considered excessive, since "drop outs" between grades in Kansas City often run as high as 50 per cent.

TABLE 1 Percentage of recommended intakes of ten food groups by research and control classes prior to nutrition education program

FOOD GROUPS	PER CENT OF RECOMMENDED INTAKES				COMMENTS
	6th grade classes		7th grade classes		
	Research	Control	Research	Control	
Milk	67	63	59	63	all below 67% of recommendation
Eggs	88	88	78	80	all below recommendation
Non-citrus fruit	113	104	111	95	7th grade control below recommendation
Citrus fruit	100	114	90	89	—
Meat	137	122	139	135	all above 120% of recommendation
Whole grain cereal	103	84*	112	89*	both research classes over recommendation
Butter or margine	40	36	45	36	all below 46% of recommendation
Potatoes	70	64	79	64	all below 80% of recommendation
Green leafy vegetables	36	37	44	38	all below 45% of recommendation
Other vegetables	132	104*	146	95*	both research classes over 130% of recommendation

*Significant differences.

than or equal to the recommendations for both the research and control classes in the sixth grade. The sixth grade research pupils also reported more than recommended amounts of whole grain cereals. Initial intakes by the seventh grade research classes were also above recommendations for: non-citrus fruit, meat, cereals, and other vegetables.

Detailed results of dietary surveys will be reported in terms of the "one-year group" and the "two-year group." The one-year group was composed of control and research classes in the seventh grade which participated for only one year in a nutrition education program. Dietary data collected from these students will be presented and discussed below. The two-year group was composed of both control and research classes which participated for two consecutive years in a program of nutrition education. Data concerning these students will be presented in Part II of this report, which follows.

The One-Year Group

Dietary surveys of the seventh grade classes were made in terms of the same ten food groups, but on only three occasions—before the program of nutrition education began (September 1952), immediately following one year of nutritional instruction (May 1953), and at the close of a second year during which no instruction was offered (May 1954).

Since the one-year group was composed of three research classes and one control class (composite), the results of the surveys are presented in terms of four classes (Table 2).

INTAKES OF RESEARCH CLASS P-7TH (R)

Pre-Nutrition Education—September 1952. The initial intakes of seven food groups by the research class were somewhat higher than those of the control, but for the other three food groups (milk, eggs, and meat), data were practically identical for both classes (Table 2).

After One Year of Nutrition Education—May 1953. Following one year of nutrition education, there were marked differences between intakes of all food groups by the research and control students.

TABLE 2 Percentage of recommended intakes by one-year group (7th grade) before, immediately following, and one year after the close of a nutrition education program

FOOD GROUP	PER CENT OF RECOMMENDED INTAKE											
	P-7th (R) research class			B-7th (N) research class			BL-7th (K) research class			7th grade composite control class		
	September 1952*	May 1953†	May 1954‡	September 1952*	May 1953†	May 1954‡	September 1952*	May 1953†	May 1954‡	September 1952*	May 1953†	May 1954‡
Milk	63	78	60	65	67	62	52	58	46	63	56	50
Eggs	77	107	92	64	83	44	88	88	82	80	65	67
Non-citrus fruit	110	83	54	129	88	50	100	84	48	95	59	53
Citrus fruit	97	127	70	82	114	92	88	69	52	89	71	62
Meat	134	161	165	149	130	141	137	147	136	135	132	140
Whole grain cereals	130	163	113	90	126	80	109	146	99	89	90	77
Butter or margine	62	130	62	38	71	41	34	47	47	36	37	33
Potatoes	91	100	105	65	56	79	75	63	76	64	65	75
Green leafy vegetables	59	90	46	47	50	31	27	52	40	38	43	48
Other vegetables	135	141	123	121	110	79	172	83	82	95	72	84

*Pre-nutrition education.
†Immediately following one year of nutrition education.
‡One year post-nutrition education.

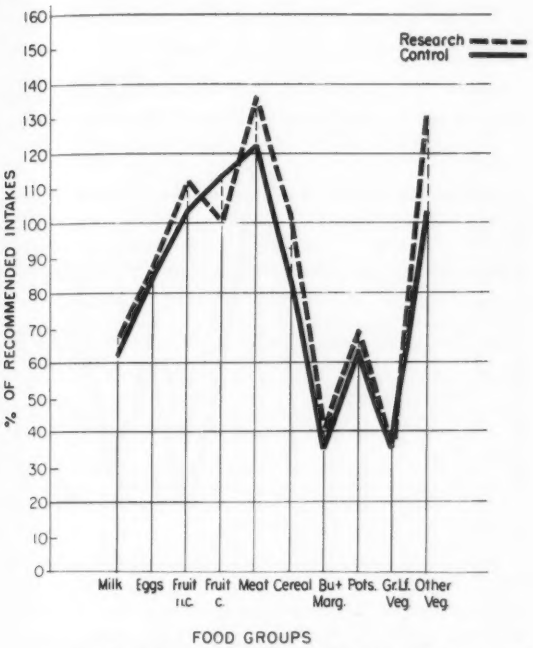

FIG. 1. *Dietary intakes recorded by sixth grade classes in September 1952, prior to nutrition education programs given for the research classes.*

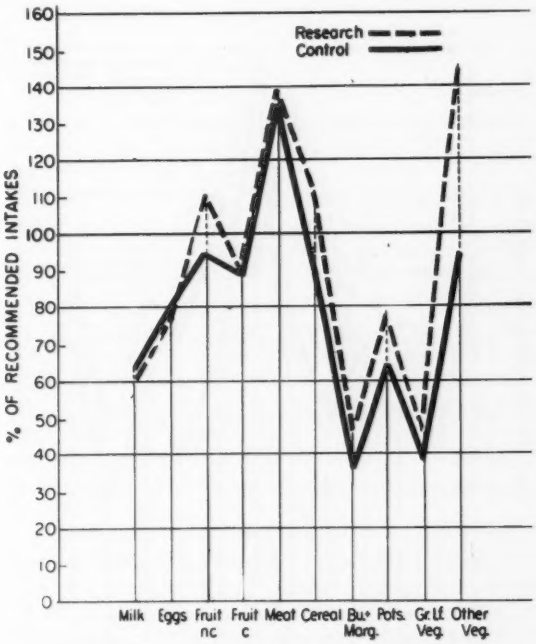

FIG. 2. *Dietary intakes recorded by the seventh grade classes in September 1952, prior to nutritional instruction given to the research classes.*

For seven food groups, the research class was above recommendations, while intake of only one food group by the control class was above the standard. Despite the relatively high pre-nutrition education intakes of the research class, intakes increased for all food groups, except non-citrus fruit (Table 2). The greatest differences between intakes of the research and control students were in: butter or margarine, whole grain cereals, other vegetables, and citrus fruit. All differences were in favor of the research class.

One Year Post-Nutrition Education—May 1954. The differences between the dietary intakes reported by the research and control classes were much the same one year post-nutrition education as they were pre-nutrition education (Table 2). The research class intakes were considerably higher than those of the control in all but three food groups. The intakes of these three—non-citrus fruit, citrus fruit, and green leafy vegetables—were comparable (Table 2).

As already indicated, the intakes of the research class were better initially than those of the control children. Also, the intakes of both classes were not as high one year post-nutrition education as they were initially; however, the research children's intakes did not decrease as much as the controls.

INTAKES OF RESEARCH CLASS B-7TH (N)

Pre-Nutrition Education—September 1952. The food intakes of this research class in September 1952 were very similar to those of the control class except for eggs, non-citrus fruit, and other vegetables. The research class reported an intake of eggs below that of the control; intakes of non-citrus fruits and other vegetables were above those of the control (Table 2).

After One Year of Nutrition Education—May 1953. At the end of one year of nutrition education, the research class reported intakes greater than those of the control class in eight of the ten food groups: milk, eggs, non-citrus fruit, citrus fruit, whole grain cereals, butter or margarine, green leafy vegetables, and other vegetables (Table 2). There were only small differences in intakes of milk and green leafy vegetables, the research class intakes being respectively 11 and 7 per cent above the control.

One Year Post-Nutrition Education—May 1954. Both the research and control classes reported intakes of only one food group (meat) greater than the recommendation one year post-nutrition education. Consumption of six food groups by the research class was slightly more for the controls.

Use of citrus fruit by the research group was considerably higher than that of the control, although they ate less eggs and green leafy vegetables.

INTAKES OF RESEARCH CLASS BL-7th (K)

Pre-Nutrition Education—September 1952. Ini-

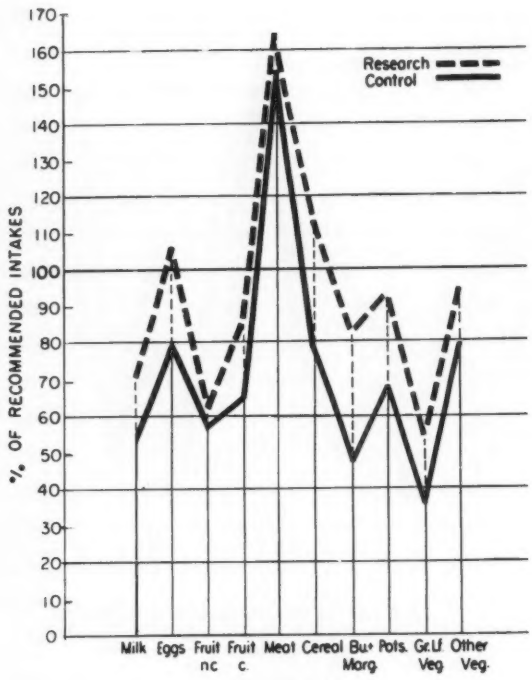

FIG. 3. *Comparison of food intakes recorded by the sixth grade research and control classes one year after the end of a two-year nutritional instruction program for the research classes (May 1955).*

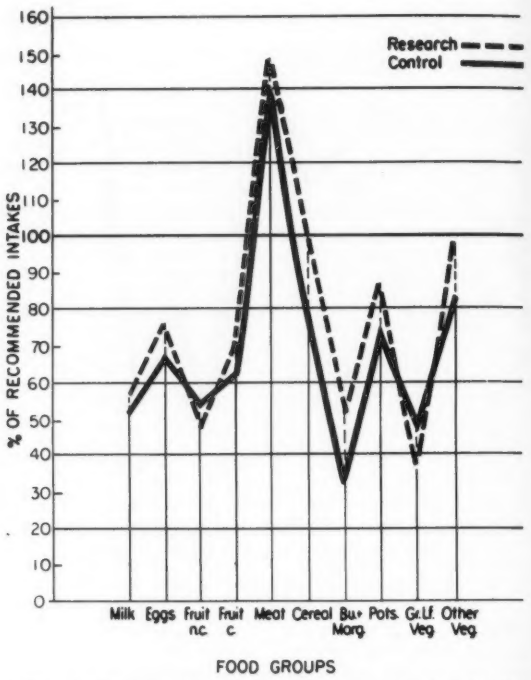

FIG. 4. *Comparison of food intakes recorded by the seventh grade research and control classes one year after the end of a one-year nutritional instruction program for the research classes (May 1954).*

tial intakes of the research and control classes were quite comparable except for other vegetables (Table 2), the research subjects reporting an unusually high intake (172 per cent of the recommendation and 77 per cent more than the control class).

After One Year of Nutrition Education—May 1953. After a year of nutrition instruction, this research class also showed considerably higher intakes than the control group for all food groups except milk, citrus fruit, and potatoes. The research students reported much higher intakes than the control class for eggs, non-citrus fruit, and whole grain cereals. And, research class intakes were slightly above those of the control group for butter or margarine, green leafy vegetables, and other vegetables (Table 2).

One Year Post-Nutrition Education—May 1954. One year after the nutrition education program had ended, the research class had intakes about the same as those of the control class with respect to: milk, non-citrus fruit, meat, potatoes, and other vegetables (Table 2). Intakes of eggs, whole grain cereals, and butter or margarine by the research class were appreciably above those of the control, while consumption of citrus fruit and green leafy vegetables was lower. Intakes of all food groups except meat, for both research and control groups, and cereals for the research children, were less than 85 per cent of the recommendation (Table 2).

These data indicate that immediately after one year of nutrition education, the dietary intakes of the research classes were much better than those of the control classes and they were some better one year later. However, these results should not be interpreted to indicate that one year of an intentionally developed program of nutrition education may be expected to change food choices of young adolescents in every situation. Conversely, there may be situations in which one year of nutrition education could cause significant changes in food choices.

The extent to which two years of nutrition education influenced food choices of another group of young adolescents will be presented and discussed in Part II of this report.

Reference

(1) WHITEHEAD, F. E.: Appraising Food Habits—An Evaluation Device with Suggested Procedures for Classroom Teaching. Baton Rouge, La.: Bureau of Educational Materials, Statistics and Research, Louisiana State University, 1948.

II. With and Without Two Years' Nutrition Instruction

YOUNG ADOLESCENTS enrolled in sixth grade research and control classes at the beginning of the study and who participated in the nutrition education programs for two consecutive years were called the "two-year group" (1). Surveys of food intake of these students indicated their food consumption in terms of ten food groups at four different times: before the programs of nutrition education began, at the end of one year of nutritional instruction, after a second year of instruction, and at the close of a third year, during which no nutrition instruction was given. Since the two-year group was composed of three research classes and a control class (composite), the results of the surveys are presented in terms of four classes in Table 1.

Intakes of Research Class L-6th (R)

Pre-Nutrition Education—September 1952. The research class L-6th (R) initially had particularly low intakes of eggs and citrus fruits as compared with the composite control but the research class' intake of whole grain cereals was almost 40 per cent higher than that of the control class. Otherwise, food intakes of both research and control classes were quite comparable (Table 1).

After One Year of Nutrition Education—May 1953. At the end of a year's nutrition instruction, the research class reported intakes of all food groups except eggs and non-citrus fruit well above those of the control class (Table 1), and, compared with the initial survey, increased intakes of all food groups except non-citrus fruit and other vegetables. The control class showed smaller increases than the research class in intakes of meat, cereals, butter or margarine, potatoes, and green leafy vegetables, with decreases in the other groups. The most striking improvement by the research class was in intake of butter or margarine; it more than doubled after one year of nutrition education. The cereal intake of the research students rose from 123 to 152 per cent of the recommendation.

Green leafy vegetable intake by the research class gained 20 per cent during the year, but was still far below the recommended level. There was little improvement in intakes of milk and eggs by the research class. Milk intake increased only 6 per cent above that of the control, and the egg intake was 14 per cent below. Consumption of non-citrus fruit fell for both groups, possibly indicating seasonal variation from September to May.

The intakes of the research class indicate an over-all positive effect of one year of nutrition education, when compared with intakes of the control class, in all food groups except non-citrus fruit. It is interesting that the intake by the research class of citrus fruit increased from an initial handicapping 85 per cent (29 per cent below control) to 107 per cent of the recommended amount—not only 7 per cent above the recommendation but also 17 per cent above the control class. Citrus fruit use by the control class decreased 24 per cent during the year.

After Two Years of Nutrition Education—May 1954. After two years of nutrition education, the research class reported considerably higher intakes than the control class for *all* ten food groups (Table 1) *and* intakes above the recommendations for all food groups except non-citrus fruit and potatoes. During the second year, their intakes of milk, eggs, citrus fruit, and meat all increased more than 35 per cent. Consumption of green leafy vegetables rose 64 per cent, while butter or margarine was 81 per cent higher. This was in addition to increases made during the first year for all food groups except non-citrus fruits.

One Year Post-Nutrition Education—May 1955. A year after the nutrition instruction ended, the research class reported intakes higher than those of the control class for all food groups except non-citrus fruit (Table 1). The research students ate more meat, cereals, butter or margarine, and other vegetables than recommended amounts; citrus fruit consumption was 95 per cent of the recommendation. The control students reported an intake of only one food group (meat) greater than 100 per cent of the recommendation, with intakes of the other nine groups below 80 per cent of the standard.

Intakes of Research Class M-6th (N)

Pre-Nutrition Education—September 1952. This research class reported higher initial intakes of eggs, other vegetables, meat, and potatoes than did the control class (Table 1). An unusually high intake of eggs—130 per cent of the recommendation—was reported by this research class. For all other research classes, as well as the control class, the use of eggs was much lower (60 to 70 per cent of the standard). There was no explanation for this difference. The intakes of the other six food groups by both classes corresponded closely.

After One Year of Nutrition Education—May 1953. Intakes of all food groups by this research group were above those of the control class. Intakes of milk, eggs, non-citrus fruit, butter or margarine, green leafy and other vegetables were noticeably higher (Table 1). For the other four food groups, the research and control classes reported similar intakes, yet data were slightly in favor of the research class.

While no marked over-all increases in consumption were achieved by this research class following one year of nutrition education, it should be pointed

TABLE 1 Percentage of recommended intakes of ten food groups by two-year group (sixth grade) before, immediately following one year's instruction, after two years' instruction, and one year after two-year nutrition education program had ended

FOOD GROUP	PER CENT OF RECOMMENDED INTAKE															
	L-6th (R) research class				M-6th (N) research class				MA-6th (K) research class				6th grade composite control class			
	September 1952*	May 1953†	May 1954‡	May 1955#	September 1952*	May 1953†	May 1954‡	May 1955#	September 1952*	May 1953†	May 1954‡	May 1955#	September 1952*	May 1953†	May 1954‡	May 1955#
Milk	57	69	107	70	73	72	83	66	67	79	89	73	63	63	65	51
Eggs	69	70	125	84	130	97	110	113	63	87	100	114	88	84	97	79
Non-citrus fruit	114	74	89	46	109	91	81	62	115	47	84	68	104	72	59	56
Citrus fruit	85	107	117	95	111	101	140	78	99	109	106	80	114	90	79	66
Meat	141	163	183	179	142	134	155	171	131	146	152	152	122	130	140	155
Whole grain cereals	123	152	158	136	74	114	111	92	116	123	134	111	84	107	93	77
Butter or margine	54	113	162	126	33	68	92	44	39	94	131	87	36	42	50	45
Potatoes	59	79	88	76	86	75	86	101	63	77	109	89	64	70	65	67
Green leafy vegetables	43	63	120	63	40	66	53	52	29	45	57	48	37	46	47	34
Other vegetables	121	111	144	105	140	111	128	83	131	102	144	98	104	91	104	80

*Pre-nutrition education.
†Immediately following one year of nutrition education.
‡Immediately following two years of nutrition education.
#One-year post-nutrition education.

out that they reported no extremely low intakes of any food group. The lowest intakes were: 66 per cent of the recommendation for green leafy vegetables and 68 per cent for butter or margarine; these were increases of 26 and 35 per cent, respectively, above the initial intakes. Other intakes were near the recommended amounts.

After Two Years of Nutrition Education—May 1954. At the end of two years of nutrition teaching, research class M-6th (N) again reported higher intakes than did the control class for all food groups as well as increased intakes of seven food groups. The most striking increase was for citrus fruit, which rose from 101 to 140 per cent of the recommendation (Table 1). Research class consumption of five food groups was between 80 and 90 per cent of the standard. Intake of green leafy vegetables by the research class improved, but reached only 53 cent of the recommendation by the end of the year. The control class showed intakes of only two food groups above recommendations: meat, 140 per cent, and other vegetables, 104 per cent.

One Year Post-Nutrition Education—May 1955. One year after the nutrition education program was over, intakes of the research class were above or equal to those of the control class for all food groups. Research students ate 34 per cent more eggs and potatoes than their controls. Consumption of milk, citrus fruit, meat, cereals, and green leafy vegetables was noticeably higher than for the control class.

One year post-nutrition education, the intakes of both the research and control classes were quite different from pre-nutrition education intakes. The research class ate more of five food groups and less of five, whereas the control class showed increases in only three food groups and decreases in seven. The research subjects reported intakes of more than the recommended amounts of three food groups; between 62 and 92 per cent for five groups; and less than 53 per cent for two food groups (Table 1). The control class had an intake of only one food group (meat) greater than the recommendation; intakes of seven groups were between 51 and 80 per cent; and two were less than 46 per cent.

Intakes of Research Class MA-6th (K)

Pre-Nutrition Education—September 1952. Initially there were no significant differences in food intake between this research class and the composite control class. The research group reported intakes of eggs, citrus fruit, and green leafy vegetables lower than those of the control (Table 1). (Consumpton of green leafy vegetables and butter or margarine was very low for both classes.) The research class had only slightly higher intakes of non-citrus fruit, meat, whole grain cereals, and other vegetables than did the control. Data for the other three food groups were practically the same for both groups.

After One Year of Nutrition Education—May 1953. Following one year of nutrition instruction, the research class had intakes well above or equal to those of the control class for all food groups except one (Table 1). The non-citrus fruit intake for the research class was only 47 per cent of the recommended amount, while that for the control class was 72 per cent. (Total fruit intake for the two classes was similar.) A possible explanation of this difference in non-citrus fruit intake was reflected in the citrus fruit intake which was 109 per cent of the recommendation for the research class and only 90 per cent for the control.

After Two Years of Nutrition Education—May 1954. At the end of the second year of nutrition education, this research class had intakes of all food groups well above those of the control class. This research class reported intakes of seven food groups above the recommendations, while this was true for only two food groups (meat and other vegetables) with respect to the control class.

One Year Post-Nutrition Education—May 1955. One year post-nutrition education, food consumption by the research class was reported to be considerably higher than for the control class for all food groups except meat. The meat intake for both groups was more than 150 per cent of the recommended amount (Table 1).

An unusual finding at the end of this year without nutrition education was the high egg consumption by the research class as compared with the control group and with previous surveys. After one year of nutrition education, this research class had reported an egg intake which was 87 per cent of the recommendation, the initial intake having been 63 per cent. After two years of nutrition education, their egg consumption was 100 per cent, and one year post-nutrition education, they showed 114 per cent of the recommended four eggs weekly.

Comparison of One-Year and Two-Year Groups

As a means of summarizing and comparing the dietary intakes of the one-year group (1) and the two-year group, a method was devised for scoring the total dietaries, as follows:

(a) The percentage intake of each food group by a research class was compared with the percentage intake of the same food group by its control. The difference was recorded as a plus (positive) or minus (negative) score. For example, in May 1953, the milk intake for research class L-6th (R) was 69 per cent of the recommendation; for the sixth grade control class, it was 63 per cent (Table 1). The difference was recorded as a score of plus 6 (+ 6), since the percentage for the research class was higher than for the control.

As a contrasting example, the egg intake of the same research class in May 1953 was 70 per cent of the recommendation, while that of the control group was 84 per cent. The difference was recorded as a score of minus 14 (—14), since the percentage for the research class was lower than for the control.

(b) These comparisons were made for each of the ten food groups for each of the six classes, and their scores were recorded.

(c) To obtain a composite dietary score for each class, the scores for the ten food groups were totaled. For example, the scores for class L-6th (R) (+6, —14, +2, +17, +32, +45, +71, +9, +17, +20) totaled plus 205 (+205).

TABLE 2 Composite scores of research classes after exposure to nutrition education*

RESEARCH CLASSES	COMPOSITE DIETARY SCORE		
	Immediately after one year of nutrition education	Immediately after two years of nutrition education	One year post-nutrition education
One-Year Group			
7th (R)	490	—	201
7th (N)	205	—	10
7th (K)	147	—	19
Two-Year Group			
6th (R)	205	496	270
6th (N)	133	242	152
6th (K)	113	309	200

*See text for explanation of arithmetic used in obtaining scores.

(d) The totals for the six classes were calculated and recorded at the end of each school year. All totals were plus (or positive) in favor of the research classes and are shown in Table 2.

Data presented in Table 2 indicate that the two-year group made considerably higher scores than did the one-year group. This was true not only when the group scores were compared at the ends of their instructional periods but also when they were compared a year after the nutrition education programs had ended. These data also indicate that all research classes showed some increases in dietary scores at the end of the instructional period, whether they participated in a one-year or a two-year nutrition education program.

Conclusions

Although changes in dietary habits are caused by many factors, it is concluded from the data presented that the intentionally developed programs of nutrition education caused increases in the dietary scores of the research classes. These increases were considered as improvements in food choices.

The data suggest that two years of nutrition education were more effective than one.

Because of the wide variation in the final dietary scores, it is concluded that factors other than the *length of time* to which the research classes were exposed to nutrition education were influential in causing improvement in food choices.

Recommendations

All available reports of the nutrition education programs developed during this project should be analyzed to discover the characteristics which contributed to their relative effectiveness. Attention should be given to learning experiences, methods, approaches, and materials used by the teachers—especially those teachers responsible for programs effecting the greatest increases in dietary scores.

Once the dominant characteristics of the most effective nutrition education programs have been formulated, they should be explored and tested with other interested teachers and nutritionists who work with young adolescents.

Further study is recommended to determine: (a) what and how much preparation teachers need in the area of nutrition and nutrition education to feel secure enough to guide children in making wise food choices; and (b) the extent to which such preparation will cause teachers to improve their own dietary intakes, as well as those of their families.

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BIOGRAPHICAL NOTES FROM THE HISTORY OF NUTRITION

Johan G. C. T. Kjeldahl—August 16, 1849–July 18, 1900

Perhaps nutritionists and biochemists would have waited a long time for an accurate and comparatively quick method for the quantitative determination of protein had it not been for a certain brewery. At least the possibilities are interesting to speculate upon. The facts are that a chemist working in a laboratory founded by a brewing company of Denmark needed to know the changes that occur in the proteins of grains and malt during fermentation. That meant many analyses must be done. The only method in use at the time was a long, tedious, and delicate procedure unsuitable for large scale work and therefore impractical for the purpose. Some new method must be devised. This was done by Johan Kjeldahl in 1883. Students of biochemistry the world over are familiar with the long-necked flasks and the Kjeldahl method of determining nitrogen, but probably few stop to think about the man whose name identifies the method.

Johan Gustav Christoffer Thorsagen Kjeldahl was born at Jaegerspris, a small Danish village in the northeast part of the island of Zealand, on August 16, 1849. His father was Jorgen Pedersen Kjeldahl, a local medical officer. Kjeldahl's early education was at one of the oldest Danish cathedral schools in Roskilde. He received his bachelor's degree in 1867 and then went to Copenhagen where he studied chemistry and physics at the University and at the Royal Polytechnical College. His master's degree was obtained with honors in 1873, and the same year he was appointed Assistant in Chemistry to C. T. Barfoed at the Royal Danish Agricultural College. His work was of high quality, and in 1875 Barfoed recommended him for appointment to establish and operate a new laboratory for the brewery owned by J. C. Jacobsen. The following year, Jacobsen founded the famous Carlsberg Laboratory under an independent foundation for the study of proteins, yeast, and the fermentation process, and invited Kjeldahl to be head of the chemical department, a position he held until his death some twenty-five years later.

Kjeldahl was an able investigator and carried on extensive research on enzymatic action and the behavior of enzymes, the determination of various sugars and mixtures of sugars, and the optical rotation of vegetable proteins. The total volume of work he accomplished was not large because he was hampered by a delicate constitution. He was a good teacher and was generous in helping young men getting started in the field but had neither the time nor the strength to give a regular series of lectures.

It was in 1881 that Kjeldahl found he needed a practical method for protein analysis and by 1883 he was able to publish his famous procedure (Zeit. anal. Chem. 22: 336, 1883).

He was elected a member of the Royal Danish Academy of Science in 1890 and received an honorary doctoral degree from the University of Copenhagen in 1894. He was a bachelor all his life and had a keen interest in the arts and literature as well as in his chosen field of science. Photographs show him as a man with a long face, penetrating gaze, drooping mustache, and receding hairline.

On July 18, 1900, Kjeldahl was bathing at Tisvilde in his native Zealand when he died of a heart attack.

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Thiamine in, and Palatability of Soybeans[1]

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Since green soybeans have great potential in extending the nutritive value and variety of the American diet, the authors have studied the effects of canning, freezing, and storage on this legume. Soaking and cooking methods for mature soybeans were also investigated.

SINCE GREEN, vegetable-type soybeans could be used to increase the nutritive value and variety of the American diet, it seemed desirable to obtain more information on the effects of canning, freezing, and storage after processing on thiamine retention and palatability. Six varieties of freshly harvested green soybeans grown in 1955 and 1956 were analyzed for thiamine content before and after processing and after storage. The canned and frozen beans of the 1956 crop were cooked and rated for appearance, color, texture, flavor, and absence of off-flavor.

Little work has been published on the nutritive value of cooked mature soybeans or on the relative merits of several home practices in preparing dry beans. Short cuts for soaking and boiling dried legumes have been proposed (1) and the experimental data leading to the development of the recommendations have been published (2). However, soybeans were not among the dried legumes studied, and only the thiamine content of pea beans was investigated. Therefore, the second objective of this study was to determine the effects of a long vs. a short method of soaking and of cooking in a tightly covered saucepan or in a pressure saucepan on thiamine content and palatability of mature soybeans. In addition, thiamine determinations were made on nine varieties of dry mature soybeans.

Experimental Procedure

In 1955, experimental lot 113, Giant Green, Hahto, Jogun, Kia, and Sanga soybeans and in 1956 experimental lot 113, Hahto, Jogun, Kanrich, Kanrich x Jogun, and Kim soybeans were grown under the supervision of the Department of Horticulture of the University of Illinois. The immature beans were harvested at suitable stages of maturity for eating as a green vegetable and brought to the food research laboratory on the days they were picked. Shelled dry mature beans of the same varieties and of the Jogun variety in 1954 were received in October of the different years and stored in dark bottles at room temperature until used.

Freshly harvested green soybeans in lots of 1800 gm. were blanched in hot water for 5 min., cooled 5 min. under cold running water, hulled, washed, and partially dried. This process was repeated three times to give sufficient amounts of shelled blanched and cooled beans to can and freeze. Portions of these were canned according to directions given in "Wartime Canning of Fruits, Vegetables" (3) except that plain No. 2 cans were used. The canned beans were stored at room temperature until tested. For freezing, 350-gm. portions of hulled, blanched, and cooled beans were packed in Cellophane-lined pint containers, which were then heat-sealed. In 1955, the beans were frozen and stored in a chest-type freezer and in 1956 in a walk-in freezer where the temperatures were approximately —12°F. and —5°F., respectively.

The green soybeans, canned and frozen in 1956, were rated for palatability after three and six months of storage. Fifty gm. drained, canned soybeans were boiled in 34 ml. distilled water and 6 ml. 10 per cent salt solution for 10 min.; while 50 gm. frozen soybeans were boiled in 44 ml. distilled water and 6 ml. 10 per cent salt solution for 8 min.

Dry, mature experimental lot 113, Hahto, Jogun, Kanrich, and Kanrich x Jogun soybeans were used for comparisons of soaking and cooking methods. Each method was replicated four or five times for each variety. For the longer soaking, 100 gm. ma-

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ture beans were washed with three 800-ml. portions of tap water, drained, and placed in a glass container. A volume of tap water equal to three times the original volume of the 100 gm. dry beans was added. The container was covered and placed in a refrigerator for 16½ hr. (4). In the short-soak method (1), the beans were washed as before, placed in an aluminum saucepan together with three times their volume of water, boiled for 2 min., and then allowed to stand in the hot water for 1 hr.

When a tightly covered aluminum saucepan was used for cooking, the drained beans were boiled gently for 90 min. in the soaking liquid made to the original volume with tap water and with 6 gm. salt added (the cover was left ajar for the first 10 min.). When beans were cooked in a pressure saucepan, the soaking liquid was discarded and the drained beans were added to 360 ml. boiling tap water containing 7.5 gm. salt. The soybeans were processed 9 min. at 15 lb. pressure; then the pressure was reduced under cold running water according to the manufacturer's directions.

Samples for moisture and thiamine determinations were taken from: (a) each lot of freshly harvested green soybeans; (b) the canned and frozen soybeans one day and three and six months after processing; (c) batches of nine varieties of dry soybeans ground to 30 mesh and finer; (d) experimental lot 113 dry soybeans after two methods of soaking; (e) Hahto and Kanrich soybeans cooked in a tightly covered saucepan subsequent to long or short soakings; and (f) Jogun and Kanrich x Jogun soybeans cooked in a tightly covered or pressure saucepan after long soaking periods. Moisture was determined by drying triplicate samples to constant weight in a vacuum oven maintained at temperatures ranging from 55° to 60°C. The thiochrome method of the Association of Vitamin Chemists, Inc. (5) with minor modifications was used to determine thiamine.

Cooked samples of canned and frozen green soybeans and of dried soybeans were judged by three to five members of the foods research staff. Appearance, color, texture, flavor, and absence of off-flavor were each rated according to a scale on which 5 corresponded to very good; 4, good; 3, fair; 2, poor; and 1, very poor. Total palatability scores were obtained by adding the scores given to the individual quality factors.

Statistical analyses of the data for thiamine retention and total palatability scores were made by calculating Student's "t" for paired data and testing for significance of differences between the means (6).

Results and Discussion

GREEN IMMATURE SOYBEANS

Mean values and standard deviations of the means for moisture and thiamine of freshly harvested and of stored canned and frozen soybeans and for thiamine retention in the stored processed beans are presented in Table 1. It is interesting that similar mean amounts of thiamine in six varieties of freshly harvested beans (4.3 ± 0.22 mcg. and 4.4 ± 0.18 mcg. per gram) were obtained during the two years of the study. The ranges in thiamine content were also very similar: in 1955, thiamine values ranged from 3.6 mcg. per gram for Giant Green soybeans to 5.0 mcg. per gram for Hahto; and in 1956, from 3.8 mcg. per gram for Kim to 5.1 mcg. per gram for Kanrich x Jogun. Lower thiamine values for green

TABLE 1 **Effect of canning, freezing, and storage after processing on thiamine in green soybeans**

TREATMENT	NUMBER OF VARIETIES	MEAN MOISTURE CONTENT	THIAMINE	
			Mean content	Mean retention
1955 Crop				
		%	*mcg./gm.*	*mcg./gm.*
Freshly harvested	6	73.7±0.83†	4.3±0.22†	—
Canned and stored 1 day	6	77.8±0.54	1.0±0.02	26±1.4*†
Frozen and stored 1 day	6	73.5±0.72	3.9±0.15	91±1.7
Canned and stored 3 months	6	78.0±0.61	0.9±0.02	—
Frozen and stored 3 months	6	73.3±0.73	4.1±0.19	97±1.4
Canned and stored 6 months	5	78.5±0.49	0.8±0.03	19±0.6*
Frozen and stored 6 months	6	73.5±0.89	4.1±0.24	96±1.8
1956 Crop				
Freshly harvested	6	69.1±1.79	4.4±0.18	—
Canned and stored 1 day	6	75.6±1.09	0.9±0.06	22±1.1*
Frozen and stored 1 day	6	69.8±1.58	3.9±0.15	89±1.8
Canned and stored 3 months	6	75.7±0.98	0.8±0.04	19±1.1*
Frozen and stored 3 months	6	70.1±1.64	4.0±0.11	91±2.3
Canned and stored 6 months	5	76.6±1.00	0.7±0.06	18±1.1*
Frozen and stored 6 months	6	69.4±1.70	4.2±0.11	97±2.4

*Significantly lower at the 1 per cent level than mean value for comparable frozen samples.
†Standard deviation of the means.

TABLE 2 Mean palatability scores of canned and frozen green soybeans of the 1956 crop cooked after three and six months' storage

TREATMENT PRIOR TO COOKING	NUMBER OF RATINGS	NUMBER OF VARIETIES	MEAN PALATABILITY SCORES†					
			Appearance	Color	Texture	Flavor	Absence of off-flavor	Total
Canned and stored 3 months	24	6	3.2	2.6	2.6	3.0	4.7	16.1*
Frozen and stored 3 months	24	6	4.0	4.1	3.5	3.7	5.0	20.2
Canned and stored 6 months	19	5	2.7	2.6	2.6	2.9	4.3	15.2*
Frozen and stored 6 months	23	6	3.7	3.9	4.0	3.9	4.7	20.2

*Significantly lower at the 1 per cent level than mean scores for comparable frozen samples.
†Maximum score (for an individual palatability factor)—5, very good; minimum score—1, very poor.

soybeans have been reported in the literature: 310 mcg. per 100 gm. (7); 0.227 to 0.313 mg. per 100 gm. (8); and 2.44 and 2.86 mcg. per gram (9). However, McGregor and Bedford analyzed (10) green Bansei soybeans and found 0.445 to 0.508 mg. thiamine per 100 gm.

Canning resulted in significant thiamine losses. When analyzed the day after processing, mean values for the thiamine retention in drained canned beans were only 26 ± 1.4 and 22 ± 1.1 per cent. After three and six months' storage, the mean retentions were 18 or 19 per cent. These results confirm those obtained by Bedford and McGregor (11). Kramer *et al.* (12) also reported thiamine values in the same range for canned soybeans analyzed the year they were processed. After one, two, or three years of storage the thiamine in the canned beans was markedly lower (12, 13).

On the other hand, freezing and freezer storage had little effect on the thiamine of green soybeans; the mean values for the frozen beans ranged from 3.9 ± 0.15 to 4.2 ± 0.11 mcg. per gram. Similarly, Lee and Whitcombe did not obtain (9) any losses of thiamine during six months' freezer storage while McGregor and Bedford reported (10) losses of 14 to 15 per cent during scalding and freezing and additional losses of 2 to 3 per cent after seven months' storage.

Mean ratings for individual palatability factors and mean total scores of canned and frozen soybeans after three and six months of storage are given in Table 2. The mean total scores for frozen soybeans, which indicated that they were considered good, were significantly higher than the mean totals for the canned soybeans which corresponded to fair; canned soybeans received mean ratings between poor and fair for color, texture, and flavor. The processed beans stored for three months were not rated significantly higher than those held six months. The scores for the latter storage period confirm earlier work of Van Duyne and co-workers (14) and support the conclusions of Smith and Van Duyne (15) that desirable products can be obtained by freezing suitable varieties of green soybeans and that canned soybeans are less acceptable.

DRY MATURE SOYBEANS

Mean values for moisture and thiamine as determined and on the vacuum-dry-weight basis of nine varieties of soybeans are shown in Table 3. The moisture content of the mature beans harvested in 1955 and analyzed in 1956 ranged from 5.1 ± 0.11 to 5.6 ± 0.11 per cent, while those of beans harvested and analyzed in 1956 varied from 7.0 ± 0.22 to 8.3 ± 0.20 per cent. Morris and Wood found (16)

TABLE 3 Moisture content and thiamine in dry, mature, vegetable-type soybeans

VARIETY	YEAR HARVESTED	DATES OF ANALYSIS	MEAN MOISTURE CONTENT	MEAN THIAMINE	
				As determined	Vacuum, dry-weight basis
			%	*mcg./gm.*	*mcg./gm.*
Experimental lot 113	1955	Feb., March, April 1956	5.2±0.20*	15.6±0.12*	16.5±0.13*
	1956	Nov. 1956	8.3±0.20	13.3±0.19	14.5±0.24
Giant Green	1955	Feb., March, April 1956	5.5±0.19	11.6±0.13	12.3±0.18
Hahto	1955	Feb., April 1956	5.6±0.11	15.8±0.10	16.7±0.08
	1956	Nov. 1956	8.1±0.02	11.5±0.09	12.5±0.09
Jogun	1954	May. 1956	5.4±0.07	11.5±0.12	12.2±0.13
	1955	Feb., March, April 1956	5.4±0.10	15.2±0.22	16.1±0.33
	1956	Nov. 1956	8.1±0.24	12.8±0.17	14.0±0.19
Kanrich	1956	Nov. 1956	7.0±0.22	11.9±0.11	12.8±0.11
Kanrich x Jogun	1956	Nov. 1956	7.6±0.08	13.8±0.12	14.9±0.19
Kia	1955	Feb., March, April 1956	5.1±0.11	12.8±0.10	13.5±0.12
Kim	1956	Nov. 1956	7.7±0.15	12.2±0.16	13.2±0.18
Sanga	1955	Feb., March, April 1956	5.2±0.11	12.6±0.06	13.3±0.08

*Standard deviation of the means.

TABLE 4 **Effect of two methods of soaking and cooking on thiamine in soybeans**

METHOD OF SOAKING	METHOD OF COOKING	NUMBER OF REPLICATIONS†	MEAN MOISTURE CONTENT	MEAN THIAMINE		
				As determined	Vacuum, dry-weight basis	Retention
Experimental lot 113, 1956						
			%	*mcg./gm.*	*mcg./gm.*	%
None	none	2	8.3±0.20‡	13.3±0.19‡	14.5±0.24‡	—
Long	none	4	59.3±0.21	5.0±0.14	12.2±0.39	84±2.5*‡
Short	none	4	65.0±0.33	3.4±0.11	9.8±0.42	64±2.2
Hahto, 1955						
None	none	5	5.6±0.11	15.8±0.10	16.7±0.08	—
Long	tightly covered saucepan	5	63.0±0.20	2.0±0.02	5.4±0.07	30±0.4*
Short	tightly covered saucepan	5	61.8±0.42	1.7±0.04	4.4±0.08	25±0.6
Kanrich, 1956						
None	none	2	7.0±0.22	11.9±0.11	12.8±0.11	—
Long	tightly covered saucepan	5	62.9±0.27	1.5±0.08	3.9±0.18	29±1.4*
Short	tightly covered saucepan	5	62.5±0.30	1.2±0.06	3.2±0.13	23±1.0
Jogun, 1954						
None	none	2	5.4±0.07	11.5±0.12	12.2±0.13	—
Long	tightly covered saucepan	4	62.6±0.85	1.7±0.14	4.5±0.27	35±2.8
Long	pressure saucepan	4	61.8±0.37	2.5±0.07	6.5±0.22	53±1.7*
Kanrich x Jogun, 1956						
None	none	2	7.6±0.08	13.8±0.12	14.9±0.19	—
Long	tightly covered saucepan	4	62.7±0.42	1.8±0.02	4.9±0.06	31±0
Long	pressure saucepan	4	63.2±0.38	2.6±0.01	7.0±0.08	46±0*

*Significantly higher at the 1 per cent level than the comparable mean for the other treatment.
†Refers to the number of times methods and/or analyses were repeated, not to total number of determinations.
‡Standard deviation of the means.

that the moisture content of some common types of dry beans was an important factor in determining stability during storage. Beans containing less than 10 per cent moisture maintained their quality for two years at 77°F. almost as well as did control samples which were stored at —10°F.

When thiamine values for a variety of beans from two crops were compared, some seasonal variation was evident. Of the three varieties obtained in both 1955 and 1956, those grown in 1955 contained more thiamine than did those grown in 1956. Mean thiamine values for all varieties and years varied from 11.5 mcg. per gram in the 1956 Hahto soybeans and in the 1954 Jogun soybeans to 15.8 mcg. per gram in the Hahto soybeans grown in 1955. Thus, one variety, Hahto, represented both extremes of the range. These values are of the same order of magnitude but in general higher than some values reported in the literature: Burkholder (17), 8.4 to 9.6 mcg. per gram for six varieties of dry soybeans; Daniel and Norris (18), 8.03 to 10.36 mcg. per gram for five varieties; and Salmon (19) 1.1 mg. per 100 gm.

SOAKED AND COOKED MATURE SOYBEANS

Mean values for thiamine and per cent retention of thiamine in mature soybeans after two methods of soaking and cooking are given in Table 4. Soybeans soaked for the longer period retained significantly more thiamine, 84 ± 2.5 per cent, than did those soaked for the shorter period, 64 ± 2.2 per cent. Cooking decreased both the amounts retained and the differences due to the soaking method. However, when Hahto and Kanrich soybeans were cooked in a tightly covered saucepan, those undergoing the prolonged soaking had significantly higher retentions of thiamine, 30 ± 0.4 and 29 ± 1.4 per cent, than those subjected to a short soak, 25 ± 0.6 and 23 ± 1.0 per cent. Dawson *et al.* (2) also found higher thiamine retentions in soaked and cooked pea beans given an 18-hr. cold soak in hard water as compared to those given a 1-hr. hot soak.

Cooking in the pressure saucepan resulted in significantly higher percentage retentions of thiamine than did cooking in a tightly covered saucepan, even though the soaking liquid was not used for cooking in the former method. Jogun and Kanrich x Jogun soybeans prepared by the former method contained 2.5 ± 0.07 and 2.6 ± 0.01 mcg. thiamine per gram, while those prepared by the latter method contained 1.7 ± 0.14 and 1.8 ± 0.02 mcg. per gram, respectively. Thus, cooked mature soybeans compare favorably in thiamine content with other good sources of thiamine—peanuts, 0.30 mg. per 100 gm.; fried beef liver, 0.26; cooked oatmeal, 0.10; and whole wheat bread, 0.30 (20).

TABLE 5 Mean palatability scores of mature soybeans cooked after two methods of soaking or cooked by two methods after long soaking

METHOD OF SOAKING	METHOD OF COOKING	NUMBER OF RATINGS	MEAN PALATABILITY SCORES†					
			Appearance	Color	Texture	Flavor	Absence of off-flavor	Total
			Hahto, 1955					
Long	tightly covered saucepan	25	3.8	4.0	4.2	3.8	4.8	20.6
Short	tightly covered saucepan	25	3.8	4.0	3.6	4.0	4.9	20.3
			Kanrich, 1956					
Long	tightly covered saucepan	25	3.6	4.1	4.2	4.1	4.9	20.8
Short	tightly covered saucepan	25	4.0	4.2	3.8	4.0	5.0	21.1
			Jogun, 1954					
Long	tightly covered saucepan	16	3.9	3.9	3.8	3.6	4.6	19.8*
Long	pressure saucepan	16	3.2	3.7	3.6	3.6	4.4	18.6
			Kanrich x Jogun, 1956					
Long	tightly covered saucepan	16	3.5	3.8	3.6	3.6	5.0	19.5*
Long	pressure sacuepan	16	2.6	3.2	3.6	3.1	5.0	17.6

*Significantly higher at the 1 per cent level than comparable mean total score for soybeans cooked in the pressure saucepan.

†Maximum score (for an in ividual palatability factor)—5, very good; minimum score—1, very poor.

Mean ratings of individual palatability characteristics and mean total scores for cooked mature soybeans are presented in Table 5. The mean total scores for the Hahto and Kanrich beans soaked in two ways show that they were considered slightly above "good" in total palatability, regardless of soaking method and that the differences between the total mean scores were not significant. However, the differences between the mean total scores due to method of cooking *were* significant. Jogun and Kanrich x Jogun beans cooked in a tightly covered saucepan were rated as being more palatable than those cooked in a pressure saucepan. The latter method resulted in more breakage and loose skins which is indicated in the lower scores for appearance.

Summary

The mean thiamine content of six varieties of green immature soybeans harvested in 1955 was 4.3 ± 0.22 mcg. per gram and of the 1956 crop, 4.4 ± 0.18 mcg. per gram. Freezing resulted in retention of approximately 90 per cent of the thiamine originally present, while home canning resulted in the retention of only 24 per cent. The amounts of thiamine in the frozen or canned beans were not significantly affected by three or six months' storage. Frozen and canned green soybeans received mean total palatability scores corresponding to "good" and "fair," respectively.

The mean thiamine content of nine varieties of dry mature soybeans grown in one to three years ranged from 11.5 ±0.12 to 15.8 ± 0.10 mcg. per gram. Beans subjected to a long soaking period (16½ hr. in a refrigerator) retained significantly more thiamine than did soybeans given a 1-hr. hot soaking treatment both after soaking and cooking. The soaking method employed did not result in any significant difference in palatability. Soybeans cooked in a pressure saucepan had significantly higher percentage retentions of thiamine, 53 ± 1.7 and 46 ± 0, than did soybeans cooked in a tightly covered saucepan, 35 ± 2.8 and 31 ± 0, respectively, but those prepared by the latter method were rated as being more palatable.

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Food in the Event of a Nuclear Attack

Plans for federal action in regard to food supplies immediately following a nuclear attack were outlined by True D. Morse, Under Secretary of Agriculture, on January 25, 1960, at the White House Conference on Fallout Protection. Mr. Morse said in part:

In the event of an attack on the U. S., USDA, state and local governments, farmers, food processors and distributors, and the public all have important food responsibilities in the immediate post-attack period. It will be necessary for all to cooperate fully if the job of feeding the people is to be accomplished successfully. This cooperative action will be possible only if adequate planning is done in the pre-emergency period and if these plans are fully understood by all concerned before any emergency occurs.

The individual family should be prepared to feed itself and remain in the family fallout shelter for the initial two-week period following attack. Even the best prepared families will need assistance after home-stored foods have been used, and some families will need help before the two weeks have expired. Families and individuals will obtain assistance through remaining retail outlets as soon as it is safe to be out in the open. Local retail outlets will be aided by the rationing and mass feeding programs administered by local government.

USDA studies suggest that the over-all supply of food will be adequate immediately following any attack on the U. S. The main problem will be to transport and distribute food to places of need and assure equitable distribution to all people. This is a principal reason why large food stockpiles have not been advocated.

USDA will make every effort to provide adequate food to local governments. In carrying out its federal rsponsibilities, the USDA will not withhold or divert from a community food which it needs to meet approved dietary levels. A possible exception would be providing of food needed for the military. A primary aim of the federal government is to see that all people in all areas are fed as adequately as emergency circumstances permit.

There will be need to see that perishable foods are used first so as to conserve storable products and supplies for future use and for people in those areas where perishable products cannot be used due to fallout contamination.

If communications permit and if food supplies from local sources are inadequate, the USDA local office will request assistance from the USDA state office. Through it, assistance from the USDA at the national level may also be obtained.

State and local governments should develop plans for a retail food inventory and for the control of retail food distribution in the immediate post-attack period, so as to prevent waste and insure the best use of available food supplies. They should also encourage the maintaining of home and retail stocks and develop plans for mass feeding which will be needed at reception centers and elsewhere.

Ability to assess the effects of attack on food supplies and facilities is being developed. To assist in this and related work, a card directory of all major food processing and storage facilities is being assembled. USDA is also carrying out an extensive training program for members of the staff who will monitor radiation in event of emergency.

Effect of Cooking Method and Grade on Beef Roasts[1]

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IN RECENT YEARS, consumer resistance to excessive amounts of fat in beef from animals of Choice or Prime grades has stimulated producers toward the improvement of the eating quality of meat from other grades of animals. The revision of specifications and divisions of grades in the Department of Agriculture's grading system has been an aid to the consumer in selecting the particular type of meat desired. U.S. Standard grade, for example, describes young animals with small amounts of fat in the outer coating and scarcely any intramuscular fat; it is becoming an increasingly popular type of meat.

Rib and loin sections of high grade beef have generally been cooked by what is termed "dry-heat" methods (roasting and broiling) and practically all other cuts have been cooked by "moist-heat" methods (braising, stewing, and so on). The considered rule is that tender cuts are cooked by dry-heat methods, but moist-heat methods are used for less tender cuts (1, 2). Some workers have felt that further investigation was needed to test the difference in the tenderizing effects of dry and moist methods of cooking on different cuts from various grades of beef.

Cover (3) found the rate of heat penetration an important factor in increasing tenderness of meat and questioned whether moist heat is needed. Cover and Shrode (4), in comparing palatability scores and shear force values of six cuts of Utility and Choice grades of beef, found the difference between methods of cooking were not always aligned with either the cut or the grade of beef. Hood, Thompson, and Mirone (5) found cuts from rounds of low grade beef scored higher in juiciness, aroma, and flavor when cooked by dry-heat methods than equivalent cuts cooked by braising. The cuts cooked by dry-heat methods also tended to be more tender.

Griswold (6) compared several methods of cooking beef rounds of two grades. Judges scored beef rounds roasted at 250°F. and at 300°F. higher than those braised by the standard braising method. The meat roasted at 300°F. was significantly juicier than the braised meat. Difference in shear values of the 250°F. roast and the standard braised meat approached significance in favor of the roasting method. Roasting was just as desirable for beef round of Commercial grade as for that of Prime grade.

This study was undertaken to learn whether dry-heat or moist-heat methods of cooking are more favorable for good eating quality in U.S. Good and U.S. Standard shoulder of beef as purchased from the market.

Experimental Procedure

The meat was purchased from a local market[2] that had arranged to provide in each of three weeks two paired quarters, one pair from an animal graded U.S. Good and the other from an animal graded U.S. Standard. A muscle, rated of "medium tenderness," the triceps brachii (7), was stripped from each quarter; two roasts of approximately the same length were cut from the center of each muscle, thus providing two right and two left pairs of roasts from each of three animals graded U.S. Good and two pairs from each of three animals graded U.S. Standard. The U.S. Good carcasses had been ripened by the Tenderay[2] process; the U.S. Standard carcasses, which were from young grass-fed animals, had not been treated by this process.

COOKING PROCEDURES

Four roasts, one pair from U.S. Good carcasses and one pair from U.S. Standard carcasses, were cooked on two days each week. One roast of each pair was cooked in air (dry-heat method) by placing it on a rack in a shallow uncovered pan and roasting in a 300°F. oven to an internal temperature of 170°F.; the paired mate was cooked in steam and natural juices (moist-heat method) by wrapping it closely in heavy aluminum foil, putting it on a rack in a shallow pan, and cooking in a 300°F.

[1]Received for publication August 25, 1959.

[2]Kroger Company.

oven to the same internal temperature (170°F.). Two gas ovens were used on each day, and the roasts from each grade that were cooked by the same methods were put in the same oven. The methods of cooking, (dry and moist) were rotated systematically between the two ovens. The use of two pairs of cuts from each muscle permitted a roast from the shoulder-end and one from the shank-end of each muscle to be cooked by dry method and a shoulder-end and shank-end to be cooked by moist method. Shank-end roasts and shoulder-end roasts were cooked on alternate days.

SLICING AND SAMPLING

Roasts were removed from ovens and were allowed to cool to an internal temperature of 110°F. (± 5°) before slicing, to minimize differences in the drip that occurred during slicing.

Slicing was done by a hand-operated slicing machine to obtain uniform samples for the palatability testing and to have comparable slices from which cores were cut for shearing. The first cut of ½-in. thickness, which was taken from the end of the roast nearest the center of the muscle, was discarded to eliminate natural variances in the outside slice. The second and seventh slices were cut approximately ¾ in. thick and used for cutting the cores which were used to determine shear force values. Three cores of ½-in. diameter were cut from each of the two ¾-in. slices. The four pieces between the core slices were sliced ¼ in. thick and cut in half for palatability scoring.

Each panel member was given slices in paired positions from each roast in controlled order immediately after the slicing. The panel consisted of eight trained members who served throughout the study.

Tests

A palatability panel of eight members scored the roasts for juiciness, tenderness, and flavor. Each day the judges scored four samples, namely, one cooked by dry heat (in air) and one cooked by moist heat (in steam) from U.S. Good beef; one sample by dry heat, and one by moist heat from U.S. Standard beef. Judges used a score card of weighted adjectives from 0 to 5 with 0 *unacceptable* and 5 *very tender, very juicy,* or *full-flavored* for tenderness, juiciness and flavor, respectively.

Shear values as measured by the Warner-Bratzler shearing apparatus were determined on six cores (½ in. diameter) from each roast.

The rates of heat penetration; the percentages of total cooking losses; the percentages of loss as drippings were calculated for each roast. The data were analyzed statistically to determine whether differences existed between grades, between methods of cooking, and between methods within grades.

TABLE 1 Raw weight, cooking times, and losses during cooking of two grades of boneless cuts of shoulder beef

METHOD OF COOKING	RAW WEIGHT	MEAN COOKING TIME AT 300°F.	MEAN LOSSES DURING COOKING	
			Total	As drippings
U.S. Good Grade				
	gm.	*min./lb.*	%	%
Dry	1079.6	106	29.1	2.36
Moist	1028.1	79	36.6	26.56
U.S. Standard Grade				
Dry	715.5	117	28.2	2.4
Moist	752.3	86	31.5	27.36

Discussion of Results

Cooking losses in cuts cooked by moist heat (in steam) were greater than in cuts cooked by dry heat (in air); the differences were highly significant, regardless of grade. Differences in cooking losses between grades were not significant. In Table 1, cooking losses in cuts cooked by the moist-heat method are shown to be largely drippings. Approximately three-fourths of the total cooking losses are drippings in both grades of beef when cooked by the moist-heat method whereas only about 8 per cent of the losses are drippings in the comparable cuts cooked by the dry-heat method. Losses in cooking boneless cuts are known to be higher than those with the bone (8). In this study, the relatively high losses during cooking may be attributed to the fact that the cuts were boneless.

Cooking time in minutes per pound (Table 1) was significantly longer for cooking by dry heat than for cooking by moist heat. This is in accord with the findings of Cover (4); when she cooked beef in steam and in air to the same internal temperature, the dry method took a longer time and resulted in more tender roasts. Hood, Thompson, and Mirone also reported (5) significantly longer cooking time for cuts of round from young, grass-fed beef cooked by dry heat than for cuts cooked by moist heat.

Mean scores for palatability (Table 2) for cuts cooked by both methods (except those for juiciness in Good grade cuts cooked in moist heat) were from 3.00 to 3.88, that is, in the upper two-fifths of the scoring scale. Descriptive adjectives that corresponded to this range were "slightly juicy" to "juicy"; "slightly tender" to "tender"; and "fair" to "good" flavor. These evaluations seem favorable when it is recognized that the cuts were from one of the less tender muscles (7) of beef.

Scores for juiciness and for flavor were higher for cuts cooked by dry heat than for those cooked by moist heat. Scores for juiciness showed highly significant differences, while differences in flavor were significant at the 5 per cent level. U.S. Standard cuts were scored higher in juiciness than U.S. Good cuts; the differences were small but significant.

TABLE 2 Palatability scores and shear force measurements of boneless cuts of two grades of shoulder beef cooked by two methods

METHOD OF COOKING	MEAN PALATABILITY SCORES*			MEAN SHEAR FORCE VALUES†
	Flavor	Juiciness	Tenderness	
U.S. Good Grade				
Dry	3.56	3.18	3.88	5.06
Moist	3.25	2.40	3.81	5.41
U.S. Standard Grade				
Dry	3.40	3.43	3.76	4.80
Moist	3.16	3.00	3.23	5.66

*Based on scores from eight judges for each cut; scoring by weighted adjectives: 0, lowest; 10, highest.

†Based on six shears (½ in. diameter) for each cut.

Scores for juiciness of cuts from all lots tended to run in reverse order to the percentage of losses during cooking (Tables 1 and 2).

Tenderness, as measured by palatability scores and by shear force values, showed significant differences between methods and between grades, as well as a significant effect of methods within grades. In both grades of beef, cooking in air produced roasts that were scored more tender than the paired cut cooked by moist heat. Also, Good cuts were scored more tender, regardless of method of cooking, than cuts from Standard grade.

Shear force values, too, favored the dry method of cooking over the moist method; however, the differences in shear force between grades were of a different pattern (Table 2). The cuts of Standard grade were, according to shear force values, more tender than those of Good grade when cooked by dry heat, but when cooked by moist heat, the Standard grade cuts were the least tender.

All in all the dry method of cooking seemed more favorable regardless of grade. If the cooking time for cuts cooked by moist heat had been prolonged beyond the time required to reach 170°F., as is commonly practiced in moist-heat cookery, the differences in tenderness between the two methods may have been less significant. Cover (3) reported a correlation between cooking time and tenderness as measured by scores and shear force.

Summary

Paired shoulder roasts (triceps brachii muscles) cut from three carcasses graded U.S. Good and three carcasses graded U.S. Standard were cooked by dry heat and by moist heat in an oven maintained at 300°F. to an internal temperature of 170°F. Differences between methods of cooking were more marked than differences between grades. The average palatability scores of all cuts were in the range described as slightly tender to tender.

Regardless of grade, the roasts cooked by the dry-heat method, when compared with paired roasts cooked by moist-heat method, lost less weight during cooking; required a longer time to reach internal temperature of 170°F.; and were judged more juicy and of better flavor. Roasts cooked by dry heat were also more tender than those cooked by moist heat, when measured by palatability scores and by the shearing apparatus; however, these values were influenced by the grade of carcass.

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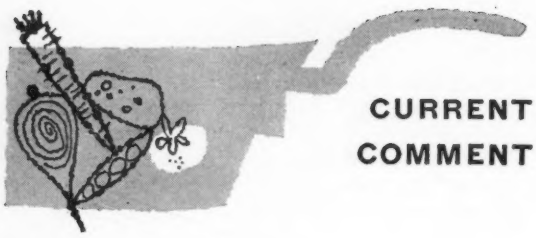
Soup Preferences

National preferences for soups have been tabulated by Campbell Soup Company from sales records in more than a hundred overseas markets. In the Scandinavian and European countries, cream of mushroom soup and consommé are most popular, while the British Commonwealth markets show a strong liking for ox tail soup. In the Far East, chicken noodle soup is a favorite, while in Cuba and some Latin American countries, cream of asparagus soup is popular. The world's largest per capita consumer of soup is Bermuda.



CURRENT COMMENT

A New Look at Diet Therapy[1]

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Some dietitians feel concern about the changing concepts of time-honored diets. At least one has said to me, "What do you teach in a course in diet therapy? It seems to me there is nothing left." Others cling to weighed diets and lists of forbidden foods, ignoring the stream of progress swirling around them. A better approach would be to take a good, hard look at the field, evaluate some of the problems, the practices—and prejudices—and examine the evidence on which both old and new practices are based. We will find that there is still much worthwhile work to be done. We will find that, just as clothes and working hours of the dietitian have changed through the years, her practice of diet therapy has changed and will change further through the years ahead.

A few years ago Dr. Seymour Gray, talking to The American Dietetic Association about diet in gastrointestinal disease, summarized (1) changes in medical thinking in that area of diet therapy in terms of liberalization, simplification, and individualization. There is a fourth term that could also be used to apply to a broader field of diet therapy, namely, prevention.

What Is Diet Therapy?

It is always good to begin with a definition. Diet, according to the Glossary of Dietetic Terms (2), is the daily allowance or intake of food and drink. Therapy, according to a standard medical dictionary (3), is the treatment of disease. Diet therapy, then must be the treatment of disease by means of the daily intake of food and drink. Inherent in this definition is the idea of some modification of the usual dietary pattern to accomplish the desired end, namely the treatment of the disease.

This definition was quite acceptable in past years when doctors concentrated their interest and energies on disease processes. But one day they also had a "new look" and lo! there was a person where formerly there had only been a disease. On closer scrutiny, they found that the same disease may follow somewhat different pathways in different persons and so they began to think in terms of a patient with a disease. (Some day this change of attitude may become well enough established that we will stop talking about "the diabetic" and use the term only as an adjective.) Let's get the patient into the definition of diet therapy and see what a difference it makes. With this in mind, we might say that "diet therapy is the modification of the daily intake of food and drink of an individual who is suffering from a disease, for the purpose of removing, or at least alleviating, the results of the disease process."

Focus on the Patient

Now the focus is on the patient rather than on the disease, and this is the first aspect of the "new look." A real person must eat the diet we plan. This is a person who for "x" number of years has been choosing his own food and has, in fact, enjoyed it. He ate that way long before he had the particular disease that now plagues him, and he sees no connection between his food and his illness. To make matters worse, his family eats the same food he eats, and they like it, too. Nor are they willing to change their diets just because the doctor says he should change his. This introduces a dilemma in the patient's life. He is now a person "set apart" from his family and friends because he can no longer share meals and snacks with them. This problem of "being different" is a real one for many people. Some resent it, some (and this is worse) become neurotic about it and use it as an attention-getting mechanism. Some patients are quite open-minded and are willing to try the diet. If the doctor says so, there must be some connection with their health, so they bravely begin. Frankly, the food tastes terrible. It needs salt—or sugar—or raw vegetables—or whatever has been removed. In addition, it is very expensive or monotonous or both, and worst of all, the patient doesn't feel much different after the first few days, so he soon stops trying. Other patients are more "cooperative." This is our word to describe a patient who does try conscientiously to follow the dietary pattern we outline. It is an unfortunate word because it necessarily implies that patients who do not succeed are "uncooperative," and puts all the blame for failure on the patient, relieving us of all further responsibility. We reason that he was told what to do, he failed to follow instructions, so we can do no more for him.

Even the "cooperative" patient has problems although his attitude is good. He was invited out last week to dinner at the boss' home and almost everything that was served was on the forbidden list.

[1]Based on an address given before the Illinois Dietetic Association in Chicago, on March 3, 1960.

What was he to do? He ate it. He even enjoyed it, because it was really a long time since he had such delicious apple pie and cheese, not to mention Roquefort dressing and scallions. In fact, he went home after that dinner and slept like a log—the best night's sleep he had had in a long time. And he woke full of pep, ready to tackle the new job that had been offered to him.

These few illustrations show some of the more obvious problems the "new look" has introduced. Lists of food, sheets of paper, calculations rounded off to the nearest half of a milligram no longer suffice. We are not dealing with paper and pencil modifications of printed menus but with real live people who have feelings, ideas, hopes, and aspirations. Let us not forget that when we were back in the pencil-and-paper stage, the patients were always there, and once out of the hospital—sometimes inside of it—they made their own decisions. It is possible that in most of the successful as well as the unsuccessful treatments of the past, the actual diet followed by the patients, was very different from that which was prescribed.

Individualization of Treatment

The "new look" calls for patient-centered individualization of treatment. Individualization means that the diet is planned to meet, insofar as permitted by the therapeutic objectives, the needs of the individual patient. These include not only his nutritive requirements, but also his social, economic and, his emotional needs as well. It is now considered good practice to listen to the patient instead of arguing with him. If he says he cannot tolerate a particular food, we may take his statement at face value and try to help him make acceptable substitutions for the offending food or to build up a tolerance to it. Even more important, perhaps, we believe him when he says he can tolerate a food, and we often allow him to eat it—at least in moderation—with no harmful results. This is *liberalization,* although it is also *individualization.* We can liberalize diets most confidently when there are studies with controlled series of patients that support the concept that recovery is hastened, or at least not retarded, on more liberal regimens. Recent studies of this type have added to the understanding of many diseases, but more studies are badly needed.

Individualization introduces some serious problems, both in administration and interpretation. We must understand people as well as diets, and people are more complicated. People feel strongly about food. They have likes and dislikes. These are often intense enough to be described as love and aversion. People frequently say, "I love apples"—or whatever. Sometimes this is only a figure of speech, but sometimes it is a statement of fact. Some people like certain foods so much that they literally cannot refrain from eating them. Food is a very personal matter. It is charged with so much emotional potential that psychologists say it may be subconsciously equated with basic feelings of security and love on one hand or dependency and rejection on the other. There are also strong implications and symbolisms in food use, including status, religious observances, and cultural patterns.

According to our definition, diet therapy means changing food habits. It is never easy to change a habit, and perhaps food habits are among the most resistant to change, for reasons already mentioned. This makes diet therapy one of the most difficult of all the kinds of treatment from among which the doctor has to choose.

When the doctor faces an ill patient who needs a change of dietary habits, the patient may resist these changes directly or indirectly. He may not say it in so many words, but his actions imply that he would rather risk the consequences than change his food habits. Do you blame the doctor for looking for a less difficult method of treatment? Surgery is quick, decisive, and easy in terms of interpersonal relationships. Pills would be the best of all. They are painless, quick, sometimes cheap, possibly psychologically uplifting (in terms of the placebo effect), and present almost no patient resistance if we except forgetfulness. There are injections. Nobody really likes them, but they are quickly over and the effects may be so fast they seem miraculous. (Contrast the use of niacin administered intravenously with the problems of treating pellagra by diet, or of vitamin B_{12} given intramuscularly once a month with eating several pounds of raw liver daily.) Even physical therapy does not require that the patient change habits of a lifetime that are near and dear to his heart. It would be wrong to belittle the problems in other kinds of therapy, but we should face the fact that diet therapy is usually a long hard road, to be chosen only when other satisfactory methods of treatment are lacking, and that patient resistance is the norm and not the exception.

A corollary to this is that, as medical science advances, many diseases formerly treated by diet may be removed from this category. The list is already growing: pellagra, beriberi, scurvy, pernicious anemia, and rheumatic fever, to mention only a few. It is natural that, as the cause of a disease is found to be the deficiency of a substance supplied by food, the substance will eventually be identified and made available in pure form. It is equally natural that when an available drug controls the underlying cause of the disease, less emphasis will be placed on modification of the diet.

New and Changing Areas of Diet Therapy

Clinical and laboratory research is revealing entirely new areas of medicine in which diet is di-

rectly or indirectly a factor in causing disease. Phenylketonuria is now recognized as an inborn error of metabolism in which the individual is born without the capacity to synthesize an enzyme necessary for a metabolic transfer in the oxidation of the amino acid phenylalanine (phenlyalanine hydroxylase) (4). Galactosemia is another inborn error of metabolism. In patients suffering from this disease, the enzyme needed for converting galactose-1-phosphate to glucose-1-phosphate is missing (5). Both of these diseases are treated by withholding the offending nutrient and adjusting the remainder of the diet to the patient's need. Celiac disease has been treated by diet for many years. The preferred diet was high in protein, low in carbohydrate and fat. Skim milk and later bananas were basic to these plans. Now it is thought that celiac patients do not tolerate gluten and gliadin, although the exact reason for the intolerance is not known (6). Some think it, too, may be an inborn error of metabolism.

Possible relationships between dietary patterns and coronary heart disease have been proposed only recently, and intensive programs of research are now in progress to define the association more precisely (7).

The restricted sodium diet seems to be firmly established in conditions where edema occurs. It is used in diseases of the heart, kidney, and liver, either as the only restriction or combined with other dietary modification, or with drug therapy. It is also used in treating toxemias of pregnancy and as an adjunct to adrenal cortical steroid therapy. Recent studies suggest that high-salt intakes over a long period of time may predispose to hypertension (8). Although the anti-hypertensive drugs are used more often for hypertensive patients than is rigid dietary restriction of sodium, this is an area of interest to dietitians that may conceivably become an important aspect of their work in the future. Much confusion surrounded restricted sodium diets a few years ago. The classification of foods into food lists similar to the diabetic Exchange lists, by a joint committee of organizations interested in this problem and published in 1958 by the American Heart Association in booklet form, represents great progress in simplifying diet therapy. Some day we may also attempt to prevent hypertension by teaching more limited salt intake—an area of dietary habits that is ignored today.

Liver diseases, especially hepatitis, have been treated for years with low-fat, high-protein, high-carbohydrate diets. Now it is not considered necessary to restrict fat drastically (9). The situation in cirrhosis of the liver, in terms of dietary treatment, is somewhat the same except that the patient with cirrhosis is usually undernourished when he seeks treatment, whereas infectious hepatitis attacks the "young, the healthy, the well nourished" (10). In addition, sodium restriction may be necessary in cirrhosis because of the occurrence of ascites.

Another group of diets under question includes those used in gastrointestinal disturbances. At present there are many difficulties in terminology in relation to diets called soft, bland, low-fiber, low-residue, and ulcer-management, to name only a few. Basic to the problems experienced in this area of diet therapy are several things over which the dietitian has no control. The etiologies of many gastrointestinal diseases are not understood, hence the treatment is empirical. Some of the diseases run a natural course that is not well understood, and studies of controlled series to evaluate treatment objectively are not available. Some foods have obtained a bad name although experimental evidence against them is lacking. All patients do not react to food in the same way, so that "what is one man's meat is another man's poison." There are no foods that are tolerated comfortably by *all* individuals, nor are there any that cannot be tolerated by some.

In addition, the emotional component in gastrointestinal disturbances is so important that it may overshadow all other contributing factors. It may very well explain many, if not all, of the time-to-time differences in reaction to food by these patients. It it well known that a patient may eat corned beef and cabbage with impunity on one day and suffer distress from drinking milk on another. Until the doctors and psychologists understand better the causes of gastrointestinal disturbances, the natural course of the diseases, and the effect of extra-dietary factors, treatment by diet will have to continue to be by trial and error. Much needed are studies of the effect of specific foods and food adjuncts, food temperatures and food residue on the mucosa, the production of acid and digestive enzymes and the motility of the gastrointestinal tract. In the meantime, individualization and liberalization should characterize the approach to treatment of gastrointestinal disorders by diet.

The Dietitian's Role

What does all this mean to the therapeutic dietitian? Only that there is still much challenging work to do. Some diseases are being removed from her area of interest by scientific progress in understanding and treatment. Others are being added. Still others are being treated more liberally than they were in the past. We can expect these lists to grow and must be flexible enough to adapt to changes without concern for our vested interests. Most important, the emphasis is changing from treatment to prevention, and this trend should accelerate. Can anyone disagree that it would be easier and better to prevent obesity than to attempt to bring about weight loss once obesity occurs? To accomplish this means a change in food habits before

the blow has struck—in other words, prevention. Atherosclerosis and hypertension may ultimately be added to the "prevention by diet" list because it is reasonable to expect that if disease results from long-time dietary patterns and is reversed by change of diet, it might be prevented by avoidance of the dietary habit at the base of the problem. This means better food habits at earlier ages. Add to the list the diseases that result from inadequate intakes of specific nutrients, those that do not readily attack well nourished persons, and a host of others that may result from or be worsened by malnutrition and it is impossible to escape the conclusion that adequate diet is of immense importance in preventive medicine.

Who is better able to guide people in the wise choice of food—or stated somewhat differently, in the establishment of good dietary habits—than the dietitian? What does the dietitian (or nutritionist) know better than any other professional person? It is the understanding of the daily intake of food and drink (the diet) that will meet the nutritive and other food-related needs of individuals of different age, sex, and occupation groups under various situations of stress, socio-economic status, and cultural patterns, not the intake in terms of nutrients only—although this is essential—but in terms of foods as they are prepared and served on the hospital tray or in the home, and as they are relished or refused by individuals.

It is the "three squares a day" approach that is uniquely the dietitian's. The doctor thinks in terms of grams and milligrams of nutrients but usually cannot translate these into servings of foods. The biochemist thinks in terms of breakdown and synthesis of chemical complexes but rarely identifies these with cupfuls or tablespoonfuls of food. The food economist thinks in terms of tons of food passing into channels of trade in response to economic laws of supply and demand. The agricultural scientist thinks in terms of yields per acre or costs per pound of production. The Food and Drug Administration is concerned with the safety of the food supply. The food engineer is interested in large-scale processing methods that control or reverse irritating characteristics of foods that cause spoilage, change of flavor or color. The grocer thinks in terms of consumer demand and sales promotion. The homemaker thinks in terms of what the family enjoys and can afford. But the dietitian must understand the implications of all these specialties so that she can interpret them in terms of a nutritionally adequate diet to meet the needs of individuals or groups, a diet that at the same time will be tasty, attractive, and suited to the budget as well as the cultural patterns and emotional needs of the people she is feeding. Her responsibility is to modify diets for the sick and teach them how to follow (this means to eat regularly) these diets until they are well—perhaps for life, when their diseases are controlled rather than cured by diet therapy. At the same time, she is responsible for teaching everyone with whom she has professional contact that a good diet of natural foods suited to the taste and purse of the individual plays an important part in promoting and maintaining health at all times. Furthermore, she must be prepared to teach what the "daily intake of food and drink"—the diet—should be.

Summed up, this means the dietitian must take the responsibility for changing the food habits of patients for whom she is responsible. This is therapy. She must also, as a part of a medical team, teach people what constitutes good food habits and help them to establish good food habits. This may well be prevention. She must do all of this with the patient as a person in mind. This is individualization. She must accomplish this by making her directions completely understandable and her plans plausible. This is simplification. She must remember that when a patient tolerates a food without harm to himself, there is no reason to deny it to him even though she may have to deny it to another. This is liberalization.

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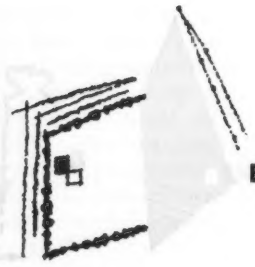


BOOK REVIEWS

Nutritional Status U.S.A. Bulletin 769. Edited by Agnes Fay Morgan, Ph.D. Berkeley, California: California Agricultural Experiment Station, 1959. Paper. Pp. 130.

This bulletin, which is an "interregional" research publication, presents a picture of the nutrition of the people of our nation at the mid-century, based on research conducted under the auspices of state Agricultural Experiment Stations and the Institute of Home Economics of the USDA. Each of the thirty-nine participating states had the over-all objective of obtaining factual information of a sampling of its population. In addition, problems pertinent to each state were explored.

In *Nutritional Status U.S.A.*, Dr. Agnes Fay Morgan, Professor Emeritus of Nutrition, University of California, who was active in the research in California, has analyzed and summarized the 178 publications resulting from work done throughout the U.S.

The observations extended from 1947 through 1958. Some four thousand subjects in each of three age groups were studied: children from five through twelve years, adolescents from thirteen to twenty years, and adults from twenty to past eighty years. The number of studies of adult men was relatively small. Usually seven-day records of foods eaten were obtained, as well as physical examinations and biochemical analyses of blood samples; some studies included urine analyses, dental examinations, and X-rays of bones and teeth.

The bulletin contains first a summary of the results. Although the analysis of the findings pointed to a generally good state of nutrition for the populations studied, it revealed some groups whose intakes of certain nutrients were less than optimal by current standards. The diets of the teen-age girls presented the least favorable picture. The nutrients most often found to be lower than the recommended amounts in the diets of children and adults in all four regions were vitamin A, ascorbic acid, calcium, and iron.

The bulletin is divided into two parts. Part I deals with these topics: "How to Get Reliable Food Records," "Family Food Consumption Records," "How Much of What Foods Was Eaten?", "The Nutrient Value of the Diets," "How Many Had Less Than the Recommended Allowances of the Nutrients?", "The Blood Composition and Its Relation to the Diets," "Growth of Children and Adolescents in Relation to Their Diets," "Incidence of Physical Signs Sometimes Associated with Nutrition Deficiencies."

Part II deals with special studies, such as "The Role of Lunch, Breakfast, and Between-Meal Snacks in the Nutrition of School Children," "Overweight and Underweight in Adults," "Dental Caries," "Bone Density," "Amino Acids and Protein Requirements," "Vitamin C Needs of Children and Adults," "The Serum Cholesterol Study," "Value of Carotene as Pro-Vitamin A," and "Some Studies in Riboflavin."

A list of the original publications is appended. The ninety-seven figures or charts provide much valuable material to be used in teaching. Through them, the results of nutritional status studies may be vitalized and the ability of students to interpret results developed.

Dr. Morgan has made a discriminating and imaginative analysis of the results of this unparalleled research. It will be of great value in giving direction to nutrition education programs throughout the country and in suggesting areas in which research is needed.—*Ercel S. Eppright, Ph.D., Head, Department of Food and Nutrition, Iowa State University, Ames.*

Food Service in Industry and Institutions. By John W. Stokes. Dubuque, Iowa: William C. Brown Co., Inc., 1960. Cloth. Pp. 261. Price $8.00.

This book is the first to come to this reviewer's attention wherein the entire content is devoted to the practical considerations and procedures involved in setting up and successfully operating food services in business establishments, hospitals, schools, colleges, governmental installations, and other institutions.

The author is a management engineer by profession who has pioneered in the application of modern scientific principles to industrial and institutional food services and restaurants. Currently he heads his own management consulting firm, has been Lecturer on Food Service Management at Boston University since 1945, and was for many years president of a Boston restaurant chain serving some 17,000 customers daily.

The book opens with an historical review of industrial and institutional feeding from the early nineteenth century to the present day. In subsequent chapters, such pertinent subjects are objectively and authoritatively detailed as: Objectives and Policies; The Food Service Organization; Food Service Layout and Equipment including Illumination and Preventive Maintenance; Purchasing, Receiving, and Storage Procedures; Menu Planning; Food Preparation and Quantity Cookery; Distribution and Service of Food; Sanitation and Safety; Control of Food, Labor, and Other Costs; and Operating Statements, Reports, and Budgets.

Microwave cooking, the "hollow-square" or "shopping center" cafeteria, automatic vending machines, prepackaged and portion-controlled foods, and the use of self-leveling devices and conveyors are among the many new and interesting operational aspects presented. The chapter on distribution and service of food contains an objective study of centralized vs. decentralized service to hospital patients which would be particularly helpful to anyone responsible for the preparation and service of food in a multi-unit operation.

The final chapters include suggestions on building and maintaining cafeteria sales and provide a meaningful accurate summary of current laws and regulations affecting food services.

Dispersed throughout the volume are numerous up-to-date photographs and diagrams of equipment, kitchens, and food service areas which, in themselves, are a welcome contribution to the literature. In addition, various types of record-keeping forms and charts have been included to illustrate the many tools and techniques available as effective aids in the operational control of food, labor, and other costs. Selected references are given at the end of many chapters.

This book should make a real contribution as a basic text in food service management courses. Managers, dietitians, kitchen designers, industrial and institutional caterers, as well as food and equipment manufacturers, should also find this book a useful authoritative reference.—*Grace A. Miller, Ph.D., Assistant Professor of Institution Administration, Michigan State University, East Lansing.*

Diets for Athletes

The football season is here. Training tables are in operation and some dietitians will, no doubt, be told by coaches and trainers, rather than consulted, about the types of foods and menus they want served. Generally, these ideas are based on folklore, whims, hunches—not on sound medical or scientific evidence. This is not to say they may not have important psychologic functions, and, of course, football squads—and baseball and basketball teams in their seasons, should be fed, but the actual nutritional needs of athletes vary little from non-athletes, except for extra calories to compensate for extra energy expenditure.

One of the most widespread training table practices has been the advocacy of large quantities of meat meant to replenish "muscular substance" following the "losses" supposedly incurred during severe muscular work. This particular practice was recorded in Greece during the fifth centuy B.C.

The first nutritional requirement in athletic performance is the caloric cost of the type of activity considered. Depending on the intensity and duration of the daily exercise of the athlete, his over-all caloric requirement might range from 3000 to as high as 6000 calories a day. For example, an average cost of playing volleyball is 3.5 calories per minute, that of tennis is 7.1; of cross country running, 10.6; and swimming the crawl at 55 yd. per minute, 14.0.

While a physically active individual can rely on his appetite as a guide in obtaining a caloric intake adequate to meet expenditures, a preliminary assessment of his fat reserves prior to training may indicate need for gaining or losing some weight. Since the energy cost of activity is proportional to body weight in most athletic events, an overweight individual expends more energy to move the additional poundage and will burn more of his body reserve to accomplish the same amount of work than he would were he at his "desirable" weight. It is one of the ironies of modern athletics that there are certain specialized spots where a degree of overweight is useful, or at least not detrimental. However, for most forms of activity, the overweight individual will be at a disadvantage for optimal performance, and therefore needs some degree of caloric restriction over a period of time. In the case of younger athletes, particularly those of high school age, normal increments in weight should be expected for growth, and increased caloric allowances should be made accordingly.

Although the beneficial effect of sugar ingested prior to performance is not confirmed for light exercise or for short-duration, with intense exercise, carbohydrate may actually become a limiting factor in the case of prolonged events, such as long-distance cycling, prolonged golfing, and marathons. In such instances, there is a valid argument for the ingestion of some form of sugar which is readily metabolized by the body. This practice is also in accordance with the fact that a given amount of oxygen consumed gives rise to a 10 per cent higher caloric output when used to burn carbohydrates than when used to burn protein or fat.

The optimal diet for an athlete in training is not essentially different from that of any normal individual; however, certain modifications may seem advisable for the particular circumstances under which the athlete is to perform. To meet the standards of nutritional adequacy, the diet should comply with the needs of the individual in terms of growth, maintenance, and superimposed activity requirements. Prior to the training season, it is desirable to assess the nutritional status of an athlete to determine specific needs for weight gain or loss so that the diet may be planned accordingly.

While undernutrition and malnutrition (including obesity) impair performance, supplementation of presumably adequate diets has not generally given clearly defined results. The multitude of problems encountered in the experimental design of studies to test the usefulness of such supplements do not always rule out the effect of motivation and progressive training. Furthermore, the conditions under which these tests have to be made may not be applicable to the athletic field performance. In general, it appears that no less than three meals a day represent a desirable pattern for athletes. Where the sports practiced are particularly protracted and exhausting, up to five lighter meals may be preferable. Available evidence indicates that the relative composition or size of the meal preceding an athletic event of short, intense duration is generally unimportant to the performance of the athlete. However, in sports which demand endurance and prolonged activity, there is evidence that performance is better maintained on a high-carbohydrate diet than on a high-fat diet, if these diets have been consumed for several days prior to the event. In such cases, even a slightly increased efficiency (the minimum figure of 5 per cent has been indicated by many investigators) on a high-carbohydrate diet may well make a difference in the outcome of a contest.

Wide variations of protein intake do not seem to influence performance capacity. In a well balanced diet, the protein requirement for maintenance and growth should be easily met.

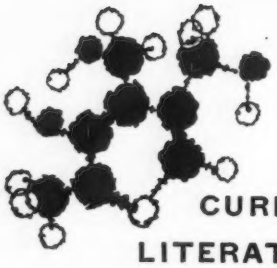
While vitamin supplementation to adequate diets appears to give no additional beneficial results, the paucity of evidence does not rule out the possibility of increased demands imposed by hard muscular work.

The use of other proposed energy aids, such as gelatin and phosphates, has yielded either no beneficial results for performance, or in some cases equivocal results, possibly due to subjective influence.

Because of deleterious effect on coordination, alcohol should be avoided during training. Coffee, tea, and other beverages containing caffeine may produce some stimulation to the individual by decreasing awareness of fatigue. Their use in large amounts is not recommended.

The use of salt above that generally contained in a meal appears to be seldom necessary and then only under unusually hot climatic conditions.

Thus, the nutritional needs for athletes are really no different from non-athletes; the appetite will take care of any extra caloric need. Training tables for convenience may well be desirable, but the foods served may be the same as for others—a well balanced, varied diet.—*Fredrick J. Stare, M. D., Ph.D., Head, Department of Nutrition, Harvard School of Public Health, Boston, speaking before the 42nd Annual Meeting of The American Dietetic Association in Los Angeles, on August 28, 1959.*



CURRENT LITERATURE

Contributed by Janette C. Carlsen, The Johns Hopkins Hospital, Baltimore: Clara Karl Frederick, University of Chicago Clinics: Margene A. Wagstaff, Elmhurst, Illinois; the following dietetic interns of Charity Hospital, New Orleans: Leen Chin, Rosa J Fernandez, and Sue Henderson; and the Journal staff

THE AMERICAN JOURNAL OF GASTROENTEROLOGY

Vol. 33, May, 1960

*Problems in patient management following gastric surgery. C. W. Wirts.—p. 580.

*The effect of safflower oil on serum lipids. P. Roen, J. Perry, and J. B. McDonald. —p. 587.

Vol. 34, July, 1960

*Chronic ulcerative colitis—atopic allergy in its etiology. A. H. Rowe and A. Rowe, Jr.—p. 49.

Patient Management after Gastric Surgery. The high incidence of serious consequences that may follow gastric surgery emphasizes the importance of improving the recognition and management of these sequelae. In the majority of cases, the management of recurrent ulcer and anatomic change requires surgery. Physiologic problems are usually attempted by medical means. Fifteen per cent of patients develop a group of postprandial symptoms termed the "dumping syndrome." A diet of small dry feedings devoid of concentrated sugar is generally recommended with fluids only between meals. It has been reported that 5 to 25 per cent of post-gastrectomy patients manifest nutritional deficiencies, probably due to reduced food intake. Five to six small feedings according to schedule rather than appetite are prescribed with vitamins and iron if needed. Probably the most difficult sequelae to treat are malabsorption and malnutrition, especially steatorrhea. The cause of this malabsorption has not been established, but the theory has been proposed that this may result from stasis in the afferent jejunal limb permitting development of a hyperinfection with intestinal bacteria. These investigators have shown that broad spectrum antibiotics administered to a small group of post-gastrectomy patients with steatorrhea can reduce fat in the stool, improve absorption, and cause weight gain.

Safflower Oil and Serum Lipids. In this study of 105 patients, it appears that the serum cholesterol can be lowered in two out of three patients by a modified, low-lipid diet with the substitution of safflower oil; however, it can only be lowered significantly in one out of three patients. It would appear justifiable to recommend at this time to patients with known hypercholesteremia and cardiovascular disease, a modified low-lipid diet and the substitution of safflower oil. Nevertheless, with the sparse knowledge of lipid metabolism, the hypothesis that dietary fats affect atherogenesis in humans remains unproved.

Chronic Ulcerative Colitis. This study was done over a period of twenty years. Allergic inflammation, especially to foods, less often to pollens, and occasionally to drugs, is indicated as the major cause in vasculitis and resultant thrombosis. Complications include anemia and avitaminosis. Of the 170 patients, allergies in 49.4 per cent were controlled with anti-allergic therapy alone. The diet, family or personal history may reveal no allergy. Study and control of food allergies in these patients is important. Fifty-six per cent of the cases had histories of food dislikes or disagreements. Allergy to milk is common, as suggested in 35.3 per cent of the patients. Skin reactions were usually negative to allergenic foods. The allergen may be determined by a process of complete exclusion of the suspected food from the diet for at least several weeks. Chronic ulcerative colitis may be activated by air-borne food molecules. The preparation of menus, recipes, the necessary cooperation, adequate use, maintenance of weight and nutrition and the adding of foods after relief is obtained has been discussed previously.

AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY

Vol. 80, July, 1960

*Serum lipids and protein-bound iodine levels of Guatemalan pregnant women from two different socioeconomic groups. J. Mendez, N. S. Scrimshaw, M. D. Abrams, and E. N. Forman.—p. 114.

Serum Lipids and Protein-Bound Iodine. A total of 219 blood samples were collected, 163 from women representing the lower socio-economic groups as judged from income status and 56 from the upper socio-economic group. Seventeen were in the first trimester of pregnancy, 52 in the second, and 69 in the third; 25 were studied at delivery. Of the second group, 6 were in the first trimester, 12 in the second, 10 in the third, and 28 were studied at delivery time. No significant differences in total serum lipids and protein-bound iodine levels were found in the two groups. Upper income non-pregnant women had more serum lipid phosphorus than lower income women, and the upper income group showed a higher average in cholesterol level. Although it had been suspected that the combined stress of pregnancy and iodine deficiency might have been producing a relative thyroid hypofunction in the lower income group responsible for greater increase of serum cholesterol and lipid phosphorus during pregnancy, these data did not support this hypothesis.

AMERICAN JOURNAL OF PUBLIC HEALTH

Vol. 50, Part II, June, 1960

*Britain's new school health problem—the fat child. H. Flack.—p. 79.

The Fat Child in Britain. Of the 1000 children medically examined in the early days of Britain's health program, 130 were undernourished, 40 had rickets, 140 were verminous, 100 had defective footwear, 50 had inadequate clothing, and 30 had heart disease. Today, the situation is very different. Out of every 1000 examined, 40 are still verminous, 17 have some unsatisfactory physical condition, and 2 have heart disease. In fact, obesity in children is now much more important than undernutrition. In one year in Bristol, 94 patients were referred to a special nutrition clinic. The large majority were referred because they weighed more than 20 lb. above the average for their age and height; 24 were more than 40 lb. overweight. Only 4 were referred because of some nutritional lack or deficiency. The treatment of obesity is discussed. In Great Britain, much success has been obtained with isocaloric diets with a high-fat intake. The emphasis is first of all on a diet low in calories and in carbohydrates, but enough protein is provided to allow for growth needs; often, this is also a high-fat diet. Children become obese most often from overeating as a habit or from emotional overeating.

THE BRITISH JOURNAL OF NUTRITION

Vol. 14, No. 2, 1960

*The effect of saponin, sterols and linoleic acid on the weight increase of growing rats. C. B. Coulson and R. A. Evans.—p. 121.

*Vitamin A and vitamin E in human blood. 1. Levels of vitamin A and carotenoids in British men and women, 1948-57. Z. A. Leitner, T. Moore, and I. M. Sharman.—p. 157.

*The effects of diets with no fat or with hydrogenated or unhydrogenated fat on growth and tissue pathology of rats. J. P. Funch, A. Jart, and H. Dam.—p. 171.

*Balance studies in malnourished Jamaican infants. 1. Absorption and retention of nitrogen and phosphorus. J. C. Waterlow and V. G. Wills.—p. 183.

*Balance studies in malnourished Jamaican infants. 2. Comparison of absorption and retention of nitrogen and phosphorus from human milk and a cow's-milk mixture. J. C. Waterlow, V. G. Wills, and P. György.—p. 199.

*The nutritional status of children of preschool age in the Guatemalan community of Amatitlán. 1. Comparison of family and child diets. M. Flores and B. Garcia. —p. 207.

*The nutritional status of children of preschool age in the Guatemalan community of Amatitlán. 2. Comparison of dietary clinical and biochemical findings. M. Béhar, G. Arroyave, M. Flores, and N. S. Scrimshaw.—p. 217.

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Saponin, Sterols, and Fatty Acids in Rat Diets. The effect of saponin, sterols, and linoleic acid on the weight increase of growing rats was observed. Quillaja saponin and saponin white depressed the rate of weight gain, but it did not affect utilization of ergocalciferol. This depression of weight gain was specifically reversed by cholesterol, but not by beta-sitosterol. Cholesterol also retarded weight gain. Linoleic acid, when esterified or protected by an anti-oxidant, increased the rate of gain whereas free linoleic acid and choline had no effect.

Nordihydroguiaretic acid appeared to have a stimulatory effect, separate from its anti-oxidant role, but alpha-tocopherol did not.

Vitamin A in Human Blood. Vitamin A and total carotenoids were studied in the blood serum of more than seven hundred British men and five hundred women in whom no serious disease could be detected. Wide individual variations were found in both sexes. The mean values for equal numbers of each sex were 158 I.U. vitamin A and 126 carotenoids per 100 ml. serum. Vitamin A levels were about 20 per cent higher in men than women, while the carotenoids were about 8 per cent higher in women. There also were variations of vitamin A and carotenoid levels with age and with the season. In both sexes, blood vitamin A appeared to have increased since the removal of wartime food restrictions. Increases in blood carotenoids were less pronounced. It seems probable that the sex differences in the levels of vitamin A and carotenoids may be partly due to greater efficiency in the conversion of carotene into vitamin A by men than by women.

Dietary Fat and Rat Growth. The effect of partly hydrogenated coconut oil was compared with that of completely hydrogenated coconut oil, alone or supplemented with cottonseed oil, on growth and tissues of rats. Partly hydrogenated coconut oil did not increase the requirement for linoleic acid or, in the absence of essential fatty acids, aggravate the deficiency syndrome more than did the same amount of completely hydrogenated coconut oil. This finding indicates that isomers of unsaturated fatty acids—at least in small amounts, as in partly hydrogenated coconut oil—have no deleterious effect on rats. Transisomers of fatty acids in the diet, as furnished by partly hydrogenated coconut oil, occurred in depot fat but did not inhibit growth. The store of liver lipid in the rats receiving lower levels of coconut oil or hydrogenated coconut oil, alone or supplemented with cottonseed oil, was greater than in animals receiving higher levels of the same fats. This study supports the view that the biologic action of hardened fats may be explained by assuming that increased levels of dietary fat increase the requirement for essential fatty acids, saturated more so than unsaturated fatty acids and long-chain more so than medium-chain acids.

Balance Studies in Malnourished Infants. Nitrogen and phosphorus balances were done on thirty-seven severely malnourished babies, five of whom died. At all stages of treatment, over 80 per cent of ingested nitrogen and about two-thirds of ingested phosphorus were absorbed. Phosphorus retention, like nitrogen retention, diminished in the later stages of treatment. Most of the babies received only 0.3 to 0.4 gm. nitrogen per kilogram per day, which is lower than intakes often used for the treatment of protein malnutrition. It follows that if such intakes are adequate for repair, they should also be adequate for normal growth and maintenance.

Nitrogen and Phosphorus in Milks. A comparison was made in malnourished infants of the absorption and retention of nitrogen and phosphorus from human milk and from cow's-milk mixtures of equal protein, fat, and carbohydrate content. Nitrogen absorption was not significantly different with the two types of milk. On human milk, 49 per cent of ingested nitrogen was retained, compared with 41 per cent on the cow's-milk mixtures. On both types of milk, 70 per cent of ingested phosphorus was absorbed, and the absolute amounts of phosphorus retained were the same. It is suggested that although the difference in nitrogen retention was not very great, it may be of biologic significance to infants living on marginal protein intakes for whom it is of critical importance to achieve the highest possible efficiency of nitrogen utilization.

Nutritional Status of Guatemalan Children. This study provides quantitative information on the caloric and nutritive intake of thirty-five preschool children and their families living in a semi-rural area of Guatemala. The dietary intake of most of the children was inadequate, especially in vitamin A, riboflavin, and good quality protein. The most marked deficiencies occurred between one and two years of age. The diet of the family as a whole was generally better. The money spent on food was insufficient to purchase an adequate family diet and that spent on feeding the young child was particularly unsatisfactory.

Dietary, Clinical, and Biochemical Findings of Guatemalan Children. The clinical, biochemical, and dietary findings in a survey of seventy-seven children under seven years of age living in a small semi-rural community in the Guatemalan highlands are described. It is concluded that nearly all of the children were sufficiently malnourished to be markedly retarded in growth and development and that a small proportion were on the borderline of severe protein deficiency of the kwashiorkor type. The three types of findings—clinical, biochemical, and dietary—served to complement one another and made possible an evaluation of the nutritional status.

BRITISH MEDICAL JOURNAL

No. 5192, July 9, 1960

*Potassium deficiency in anorexia nervosa, with reference to renal tubular vacuolation. R. D. Wigley.—p. 110.

Potassium Deficiency in Anorexia Nervosa. Seventeen reported cases of anorexia nervosa with hypokalemia are summarized. Eight showed some evidence of renal disorder. Habitual purgation complicated the only case shown to have the tubular lesion of potassium depletion. Three cases with hypokalemia are described, one showing tubular vacuolation. It is thought that potassium depletion is due to a deficient intake, aggravated in some cases by vomiting and in some by purgation. Malabsorption may be more certainly excluded if further cases become available. Fatal paralysis and possibly irreversible renal changes may occur if this complication is not recognized. Five of the twenty patients had died at the time of reporting. Conventional treatment should correct the deficit, but oral or intravenous potassium chloride may prove necessary.

THE CANADIAN MEDICAL ASSOCIATION JOURNAL

Vol. 83, July 2, 1960

*The importance of diet in diabetes mellitus. —p. 28.

Vol. 83, July 16, 1960

*Neuropathy and diabetes. W. Grobin.—p. 126

Diet in Diabetes Mellitus. It would seem almost superfluous to stress the importance of dietotherapy in diabetes were it not for observations in a diabetic clinic indicating that many patients do not follow the diet prescribed. One reason for inadequate attention to the prescribed diet is inability to understand it. The excuse often heard that the patients are unable to afford it is good proof that they did not understand their diet. The importance of proper application of the diet is made more obvious when one considers that over 60 per cent of adult diabetics can be controlled entirely by dietary means and exercise. Better control of clinic patients was obtained by increasing emphasis on diet, both to patients and to attending physicians. It is true that the enthusiasm on the part of the staff is transmitted to the patients and it is possible that improvement was, to some extent, due to this "placebo" effect. Much thought was also given to overcoming the low level of intelligence of many clinic patients by careful instruction to groups in continuous lectures. Social service is an additional advantage in many cases, and home visits can help the patient solve his problem.

Neuropathy and Diabetes. The paradoxical development of neuropathy

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after institution of good control in the diabetic is not unlike that of the deficiency syndromes encountered after the institution of good nutrition in people on a chronic suboptimal intake of nutrients. The well known observations of such disorders in inmates of concentration camps after liberation is one example. Recently Zubiran of Mexico reported that Mexicans existing on a deficient diet, to which they are adapted, frequently develop deficiency syndromes when given a more nutritious diet. The diabetic person, with his inadequate utilization of sugar, may, on being well controlled, utilize large amounts of thiamine, for instance; a relative deficiency of this vitamin could cause neuropathy in some cases. The finding of neuropathy as the initial symptom of diabetes, sometimes months before the development of glycosuria is not an isolated observation, and it is understandable that doubt can be cast on the statement that diabetic neuropathy always indicates poor control of diabetes.

CEREAL CHEMISTRY

Vol. 37, July, 1960

*Quality of the protein in selected baked wheat products. B. M. Kennedy and A. R. Sabiston.—p. 535.

Protein Quality in Baked Products. The quality of protein was determined in baked wheat products containing varying amounts of milk and whole egg. Protein efficiency ratios for the unbaked ingredients were: baking-powder biscuits, 2.4; muffins, 2.9; griddle cakes, 3.6; and 4.2 for a cookie mix. The ratios were about 15 per cent lower when the mixtures were baked. Milk and eggs exerted a considerable supplementary effect, since the determined protein efficiency ratios were more than 60 per cent higher than those calculated from the individual ingredients. With 76 per cent of the protein from white flour and 24 per cent from milk, isoleucine, threonine, and valine were no longer limiting. Increasing amounts of milk and egg protein increased the protein efficiency ratios. When 52 per cent of the protein was supplied by white flour and the rest by milk and eggs, as in griddle cakes, the protein efficiency ratio was nearly as high as was that for whole egg.

CIRCULATION

Vol. 22, July, 1960

*Vitamin E. Effect on serum cholesterol and lipoproteins. D. Harman.—p. 151.

Vitamin E and Cholesterol. Oxidation of constituents of serum lipoproteins to form compounds of higher molecular weight has been postulated as one of the initiating steps in the pathogenesis of atherosclerosis. Studies of storage of isolated lipoproteins have shown that oxidative reactions occur which result in a shift of the low-density lipoprotein pattern toward lower $S_f°$ values. Hence, if the postulated *in vivo* oxidation of lipoproteins plays a significant role in determining the observed lipoprotein levels, then increasing the serum concentration of an antioxidant might result in a shift in the pattern toward higher $S_f°$ values. The daily ingestion of 300 or 600 mg. alpha tocopherol acetate (vitamin E) for four weeks had no significant effect on serum levels of total cholesterol or low-density lipoproteins. This result neither negates nor provides support for the hypothesis of *in vivo* oxidation of serum lipoprotein.

FOOD TECHNOLOGY

Vol. 14, July, 1960

*Monosodium glutamate studies. I. Factors affecting detection of and preference for added glutamate in foods. H. L. Hanson, M. J. Brushway, and H. Lineweaver.—p. 320.

*Monosodium glutamate studies. II. Evaluation of a possible flavor stabilizing effect of glutamate in frozen foods and of the stability of glutamate to commercial canning process. H. L. Hanson, M. J. Brushway, and H. Lineweaver.—p. 328.

Chemical and physical changes in green beans during preparation and processing. W. A. Sistrunk and R. F. Cain.—p. 357.

Detecting Monosodium Glutamate (MSG). The panel selected for acuity to glutamate readily (95 per cent of possible judgments) detected glutamate added to unseasoned chicken broth at levels ranging from 0.015 to 0.04 per cent. Addition of thickenings, fat, and seasonings interfered only slightly with detection of the above levels. Added glutamate was less readily detected in peas and liver paste than in pork sausage, turkey à la king, or thickened chicken broth, and in chicken broth or turkey à la king containing the higher of two levels of sodium chloride. On the other hand, limited tests on cream of chicken broth and liver paste showed no effect of sodium chloride level within reasonable levels of variation. A high level of flour added to a highly seasoned broth made detection of added glutamate easier, probably because it masked some of the other seasonings. Ease of detecting added glutamate is not greatly influenced by variation in levels of thickening agent, fat content, or seasonings. Added glutamate was much more difficult to detect in foods normally containing very high levels of glutamate than in those containing very low levels. The glutamate content of the foods must be considered in developing recommendations for levels of added glutamate. To exhibit a demonstrable change in flavor, foods with very high glutamate content require considerably more added glutamate than foods with very low glutamate content. The extent of consumer preference for glutamate-containing samples did not vary in a consistent manner with sodium chloride level, but it is suggested that the preference decreases somewhat as the optimal acceptable sodium chloride level is approached. This level, of course, varies for different foods and individuals. In the foods tested, the preference for those with added glutamate either equalled or exceeded preference for those without added glutamate.

MSG in Frozen and Canned Foods. Monosodium glutamate at 0.15 or 0.35 per cent did not prevent or delay off-flavor development at 10°F. in fried chicken held four months; turkey à la king, nine months; raw turkey, nine months; pork sausage, four months; or pork sausage held four months at 20°F. Nor did it retard peroxide development at 10°F. in fried chicken held one year; turkey à la king, fifteen months; uncooked turkey, nine months; or pork sausage, nine months; or pork sausage held six months at 20°F. The presence of glutamate neither prevented peroxide development nor masked the flavor changes that occurred. No loss in glutamate content occurred in chicken broth, cream of chicken soup, or green beans subjected to commercial canning conditions. No flavor differences were detected between two samples of chicken broth or cream of chicken soup prepared by adding equal amounts of glutamate before and after canning, respectively. Since glutamate is stable to heat processing and since it does not affect the usual processing changes in the product as judged from this limited study, addition prior to canning, as is generally recommended, is indicated.

JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY

Vol. 8, July-August, 1960

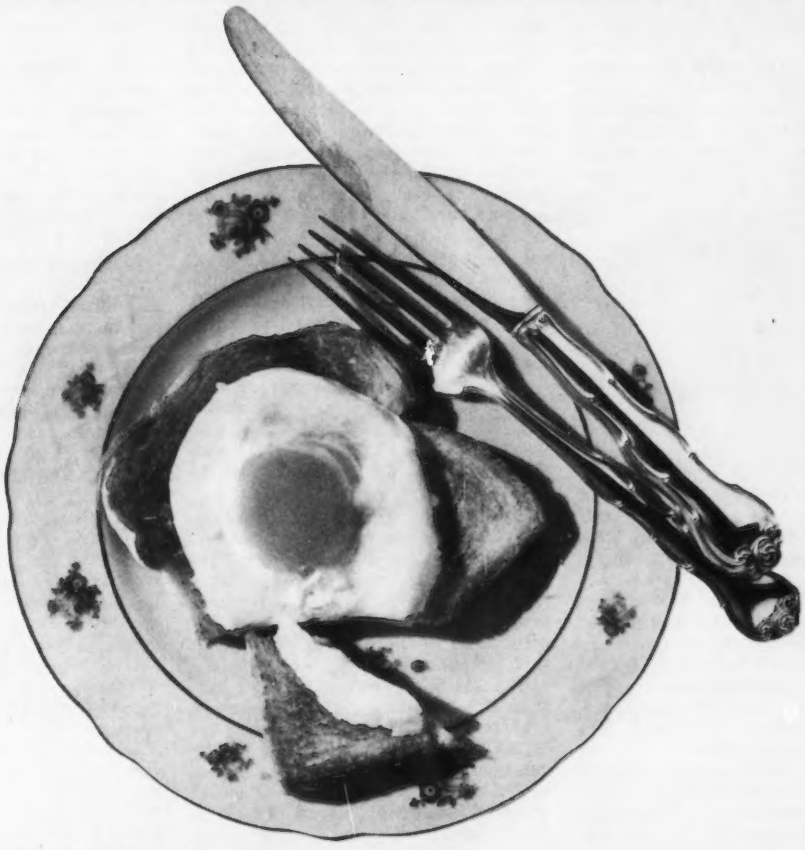
*Evaluation of protein in foods for regulatory purposes. J. A. Campbell.—p. 323.

*Effect of amino acid supplements, vitamin B_{12}, and buffalo fish on the nutritive value of proteins in sesame seed and meal. M. C. Kik.—p. 327.

Evaluation of Protein for Regulatory Purposes. The determination of the protein efficiency ratio (PER) of individual foods fed at a 10 per cent protein level in a standardized four-week rat growth assay has been found to be the most generally applicable procedure for evaluating protein quality. Based on the determination of three amino acids, lysine, methionine, and cystine, a simplified chemical score was found to correlate well with PER data on a series of forty-three foods. The method was rapid and reproducible. To evaluate the protein contribution of different foods for regulatory purposes, a protein rating was developed based on both the quantity and quality of protein in a reasonable daily intake of food. This procedure was applied to a variety of foods and appeared to classify them in a logical manner.

Value of Sesame Seed and Meal. A study of sesame seed and meal was undertaken because of their importance to human nutrition and the animal feed industry. The addition of lysine, lysine and threonine, and buffalo fish benefited growth and the protein efficiency of sesame seed and meal. Lysine and threonine influenced

many sick patients *don't, can't* or *won't* eat



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*Pareira, M. D.; Conrad, E. J.; Hicks, W., and Elman, R.: J.A.M.A. *156*:810-816 (Oct. 30) 1954.

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the biologic value and net utilization of sesame seed. Vitamin B_{12} failed to supplement the lysine-threonine additions. Data are presented on amino acid, vitamin, and mineral content. The nutritive value of sesame seed and meal warrants their use in the enrichment of diets for certain population groups and for continued use in poultry and swine rations.

JOURNAL OF THE AMERICAN GERIATRICS SOCIETY

Vol. 8, July, 1960

*Management of feeding problems in aged, disturbed patients. J. P. Senenkyj.—p. 537.

Feeding Aged, Disturbed Patients. It has been suggested that emotional distress, confusion, lack of interest, and perhaps suspicion concerning their food may play a part in the beginning of feeding problems in aged patients. The results of this preliminary trial seem to indicate that prochlorperazine is of value in treating such patients. Prochlorperazine produced satisfactory results as far as absorption of food and weight gain were concerned and overcame the patients' objections to eating. Excessive salivation occurred in one patient when the daily dose was increased. No other side effects were seen. The use of prochlorperazine in treating aged patients with serious feeding problems is now an accepted procedure on the male wards of Augusta (Maine) State Hospital for patients with depressive characteristics.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 173, July 2, 1960

*Sodium content of antacids. D. G. Rimer and M. Frankland.—p. 995.

*Absorption of vitamin B_{12}. Editorial.—p. 1031.

*Nutrition of Jews from Cochin. Foreign Letters–Israel.—p. 1041.

*Serum lipids. Foreign Letters–Israel.—p. 1041.

Vol. 173, July 9, 1960

*Idiopathic hypercalcemia of infancy. D. O'Brien, T. D. Peppers, and H. K. Silver.—p. 1106.

*Status and prospect of drugs for overeating. Council on Drugs. W. Modell.—p. 1131.

*The unhappy fat man. Editorial.—p. 1141.

*Vegetable protein diets for kwashiorkor. Foreign Letters–India.—p. 1157.

*Eating and swimming. Questions and Answers.—p. 1164.

Vol. 173, July 16, 1960

*Cardiovascular disease in Caucasians and Negroes. Editorial.—p. 1237.

*Nutritional edema and marasmus. Foreign Letters–India.—p. 1266.

Vol. 173, July 23, 1960

*Iron deficiency anemia. Foreign Letters–East Africa.—p. 1380.

*New dairy product. Foreign Letters–Sweden.—p. 1383.

Vol. 173, July 30, 1960

*Activation of peptic ulcer by nicotinic acid. Report of five cases. W. B. Parsons, Jr.—p. 1466.

*When foods are drugs. Foreign Letters–United Kingdom.—p. 1504.

*Response of diabetes to sodium orthocresotinate. Foreign Letters–United Kingdom.—p. 1506.

Sodium Content of Antacids. Two patients, one with hepatic cirrhosis and the other with congestive heart failure, became edematous and their conditions deteriorated markedly after they began to take an antacid for gastrointestinal symptoms. The condition of both improved when they stopped taking the antacid. Chemical analyses reveal that the currently popular antacids contain between 11.9 to 269.7 mg. sodium per ounce. The source of sodium is not always known, but may be due in part to the use of sodium carboxymethylcellulose as an emulsifying and suspending agent and the use of sodium compounds in the production of aluminum hydroxide or in the sodium compounds used as preservatives. An effective, palatable, non-constipating calcium carbonate-magnesium-oxide suspension with negligible amounts of sodium can be prepared.

Vitamin B_{12} Absorption. In pernicious anemia, the failure of transport of 1 mg. vitamin B_{12} daily across the small intestine mucosa leads to a deficiency which, unless effectively treated, is lethal. This failure is due to absence in the gastric secretion of intrinsic factor (IF), which is not known to have any other function than the facilitation of transmucosal transfer of vitamin B_{12}. Although the broad outlines of the vitamin B_{12}-IF relationship are fairly clear, a full understanding of the mechanisms involved is lacking. The use of vitamin B_{12} labeled with radioactive cobalt has helped greatly to clarify the picture, but the forms in which vitamin B_{12} exists in foods and the tissues of the body, the identity of IF, and the precise nature of the vitamin B_{12}-IF complex remain to be established. Some possible explanations and postulations are presented.

Nutrition of Jews from Cochin. Since food habits often represent the emotional ties which link the new immigrant with his country of origin, they tend to be preserved as much as possible in the new environment. Economic factors, as well as the nonavailability of certain foods, often frustrate this tendency, especially in smaller ethnic groups. The problem of how new immigrants to Israel manage to obtain a satisfactory diet was studied in one of the smallest ethnic groups, Jews from Cochin, South India. A marked change of food habits has occurred, the most conspicuous being the replacement of rice by wheat products as the staple food. Their general level of consumption of nutrients was satisfactory, although the intake of calcium, vitamin A, and ascorbic acid was low in 13 to 22 per cent of households. However, the mean dietary rating of all households was good.

Serum Lipids. It has been reported that Jews of European extraction (Ashkenazis) have an incidence of coronary heart disease as high as that of most European and American groups. Yemenite Jews rarely suffer from myocardial infarction, and their serum cholesterol and phospholipid levels are much lower. These authors studied different age groups and both manual and sedentary workers of Yemenites and Ashkenazis. It was concluded that the apparent tendency of the serum cholesterol level to rise with age is not a physiologic concomitant of the aging process but may rather be the result of environmental factors.

Idiopathic Hypercalcemia. Idiopathic hypercalcemia of infancy has been reported infrequently in the U. S., but there is some evidence that it may pass unrecognized because of its unfamiliarity rather than its actual rarity. The syndrome is relatively common elsewhere, particularly in the United Kingdom. In this report, the findings in four patients with this condition are described, including a series of photographs of these patients and others previously reported in the literature. Four children ranging in age from ten and a half to eighteen months were brought to the doctor because of retarded mental growth in two cases and physical growth in all cases. They all had in some degree the facies typical of idiopathic hypercalcemia, and determination of the plasma calcium contents gave values ranging from 12 to 15 mg. per 100 ml. The use of a low-calcium diet, restriction of the vitamin D intake, and administration of prednisone cortisone for three or four months reduced the plasma calcium to normal values, but only in one case was the response of the patient considered adequate with regard to both physical and mental growth.

Drugs for Overeating. Probably less than 10 per cent of all cases of obesity are due to genetic, glandular, physiologic, or physical abnormalities. In the others, the obesity is not related to defects which disturb the physiologic appetite mechanism at all. The overeating is compulsive, not stayed by amounts of food which would satisfy an appetite drive, and is most likely the consequence of psychologic disturbances, in which food provides a source of deep psychic satisfaction. There is really nothing new on the scene of drugs for overeating. The large group of drugs which are commonly called anorexiants do not depress the abnormal appetite drive directly, but rather distract the patient by central stimulation. Insofar as drugs are concerned, at the very best, their potential is secondary to the elimination of the cause of overeating. Drugs which give assistance along the lines now available provide short-lived symptomatic relief only. These seem to be useful only as adjuvants to a carefully controlled diet and, in many cases, some sort of psychotherapy.

The Unhappy Fat Man. Many unrelated forces perversely contribute to making one type of human configuration desirable when its opposite is more likely. Thus, corpulence was the symbol of affluence and virility when

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the masses were undernourished, whereas today, when food is much more abundant, obesity is more commonly associated with those who eat potatoes because they cannot afford filet mignon. Although our culture applauds the slim figure, it is openly proclaimed by many that the curvaceous classic female form has desirable voluptuous qualities. The "Man of Distinction" is never a fat man, yet business customs make the restaurant with rich food and too much drink the appropriate place for the big business deal. However, the well known euphoria that comes from a full stomach must contend with the fear that obesity is associated with atherosclerosis and a shortened life. There is much advertising of "simple solutions" to these conflicts. Since the causes for overeating are diverse, the treatments cannot all fit into a single regimen. The problem is not merely that of depressing appetite as many of the drugs for overeating proclaim. Effective therapy requires an understanding of, as well as an attack against, the causes of the underlying disturbance.

Vegetable Protein Diets for Kwashiorkor. A mixture of cheap vegetable proteins, consisting of defatted groundnut (peanut) flour and Bengal gram flour, were given to children with kwashiorkor. Part of this group received injections of vitamin B_{12} on alternate days, as vegetable proteins are believed to be inferior to animal proteins because of the absence of vitamin B_{12}. Children given skim milk powder served as controls. The time taken for disappearance of edema with all types of treatment was about the same. The total weight gain was also nearly the same, and such manifestations as skin lesions, hair changes, anemia, hepatomegaly, and mental changes showed similar improvement in all. The number of cases studied and the period of time were too small to justify definite conclusions, but the results were encouraging and, if confirmed, would help to solve the problem of malnutrition which is so prevalent in India.

Eating and Swimming. Studies in which the stomachs of persons who swam and of others who were inactive were pumped at corresponding periods after they had eaten the same meals do not show significant differences in the extent of digestion between the two groups. Neither do records of the occurrence of cramps prove that they are more likely to take place after meals. Psychic factors do affect the digestive process. Since there will ordinarily be persons so affected in any group, prohibition of swimming immediately after meals is probably a wise rule for schools and similar institutions. For the individual person, it is a matter of personal reactions and practice.

Cardiovascular Disease in Caucasians and Negroes. After an extensive survey of the literature dealing with cardiovascular diseases in Caucasians and Negroes, certain conclusions can be reached. Apparently, hypertensive disease in American Negroes occurs significantly more frequently and with greater morbidity and mortality than in American Caucasians. In contrast, arteriosclerotic heart disease is more common in Caucasians. Pathologic study has shown that the rate of development of coronary atheroma in Negroes is slower by about ten years than it is in Caucasians. The ratio of Caucasoid males to females for this disease was much greater than the ratio of Negroid males to females. With respect to aortic, cerebral, or peripheral vascular arteriosclerosis, significant racial differences were not apparent. Since differences do occur, it appears important that the racial factor be critically evaluated in statistical studies.

Nutritional Edema and Marasmus. The reason some children on a starvation diet develop nutritional edema while others show signs of marasmus is not known. This author studied twenty-two children who had severe malnutrition with edema and twenty-eight who had severe marasmic malnutrition. The biochemical changes of these children are discussed before and after treatment. The clinical response in these severely wasted children to dietetic and supportive measures was satisfactory, but a recheck of the ionograms showed that although there was a general tendency towards normalcy, about half of the patients still had hyponatremia and some had hypochloremia. Dietetic treatment alone was inadequate in regard to the electrolytic needs of the child, and serum bicarbonate levels remained high in most of the patients.

Iron Deficiency Anemia. The report of a study group of the World Health Organization showed that iron deficiency anemia is a major public health problem in the tropics. It especially affects such groups as infants and expectant mothers. The incidence is particularly high in Mauritius, where 50 per cent of certain groups of people are anemic, and in 90 per cent of these the anemia is caused by a deficiency of iron. Although the usual tropical diet is adequate in iron content, it is abnormally rich in carbohydrate with high phosphate and phytate and low calcium levels. In this way, iron is probably poorly absorbed. Actual loss of iron (as much as 10 mg. a day) may result from the almost universal infestation with hookworm in certain parts of Africa. Reports from South Africa emphasize the importance of iron deficiency anemia in the African child. Between 60 and 70 per cent of healthy Negro and Bantu children were distinctly anemic. In a group of Bantu children, the diets onto which they were weaned contained no adequate source of iron.

New Dairy Product. A new tasteless product derived from milk, rich in albumen, and intended for patients with easily upset stomachs, was developed in Sweden. It is now being produced on a minor scale by Swedish dairies and is sold mainly to hospitals. A powder with an albumen content of 67 per cent, it is made of skim milk from which milk sugar and milk salt have been extracted, and it has no milk characteristics. Being tasteless and completely neutral, it is well suited as a food additive. Since people in many areas of the world are unaccustomed to the taste of milk, it would be of great value if they could be supplied with a neutral product as an alternative to ordinary skim milk powder or dried milk.

Peptic Ulcer and Niacin. Activation of peptic ulcer was observed in five patients receiving large doses (3.0 to 7.5 gm. daily) of niacin for hypercholesteremia. Four had been in the study for long periods when the symptoms of ulcer appeared. The use of buffered niacin permits continuation of therapy without further symptoms or complication in most patients with either activation of peptic ulcer or lesser upper gastrointestinal symptoms. If large doses of niacin are to be used for long periods, it is desirable to use a buffered preparation to prevent gastrointestinal complications. An addendum note to this report points out that niacin is certainly not the sole factor responsible for the development of ulceration, and that most of the patients had severe emotional trauma before developing gastrointestinal symptoms.

When Foods Are Drugs. The Ministry of Health of Great Britain is distributing a handbook to all general practitioners in the health service to enable them to determine whether a substance is a drug or a food. Doctors are unable to prescribe foods for National Health Service patients. The use to which a preparation is put and the manner in which it is given may determine the classification. For example, glucose given intravenously or in compressed tablets to diabetic patients is a drug, but when given as a powder, it is a food. A physician runs the risk of having to pay for his patient's prescription if it does not fall into the category of a drug.

Diabetic Patients and Sodium Orthocresotinate. Acetylsalicylic acid (aspirin) in large doses relieves mild diabetic symptoms, lowers fasting blood sugar levels, and reduces glycosuria and ketonuria in patients with mild diabetes. The dose of acetylsalicylic acid required invariably produces side effects. Since sodium orthocresotinate is as effective as acetylsalicylic acid in the treatment of rheumatic fever and does not cause side effects even in large doses, it was tried in diabetes. Those previously treated by diet alone responded to treatment with orthocresotinate, which relieved mild symptoms of diabetes and caused a fall in fasting blood sugar level and a reduction in glycosuria in all patients. Those requiring insulin needed much less while taking the drug. No serious side effects were experienced.

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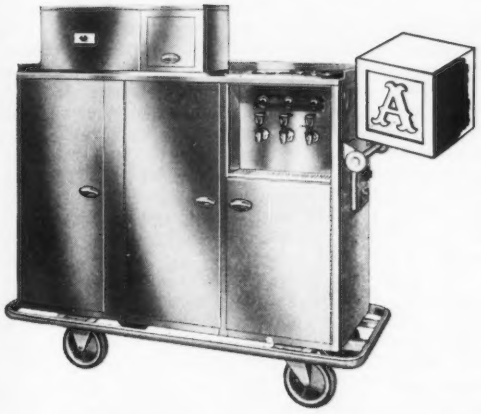

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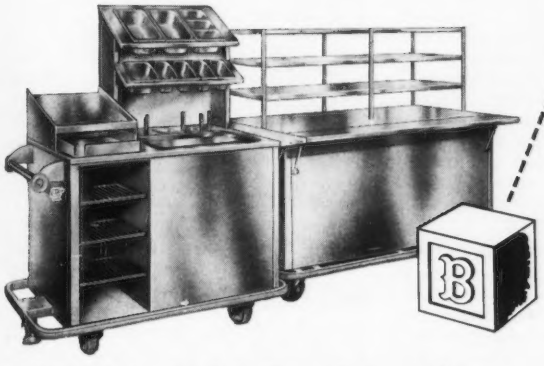

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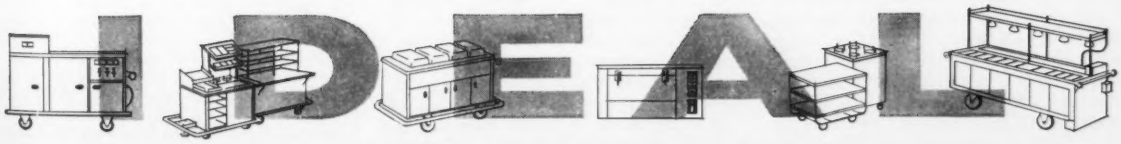

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THE JOURNAL OF THE CANADIAN DIETETIC ASSOCIATION

Vol. 22, July, 1960

*A longterm weight reduction programme. Some psychological aspects. A. M. Gryfe, J. M. Wardlaw, M. F. Grapko, D. E. Daley, and B. A. McLaren.—p. 122.

*Nutritive value of fresh milk and two "instant" nonfat milk powders. Chemical determinations. M. Blais and R. Beaudoin. —p. 128.

Weight Reducing Program. Seventy-eight women, ranging from 31 to 178 per cent overweight, commenced a long-term weight reducing program. The average weight loss of the forty-eight women who completed a 24-wk. series was 22 lb. Psychologic tests were introduced to investigate the personality characteristics. Forty-seven answered the Minnesota Multiphasic Personality Inventory, and the data were correlated with their weight losses, but no distinct personality type was revealed. The Wechsler Adult Intelligence Scale was given to twenty-three women, and the distribution of their intelligence quotients was similar to that of the general population. This study suggests that environmental factors and family food habits may be important in producing obesity.

Nutritive Value of Fresh Milk and Nonfat Milk Powders. This paper is the first part of a comparative study of fresh pasteurized milk and two new "instant" nonfat dry milk powders representing the retail market of these products in Montreal from September 1957 to May 1958. Chemical analyses have shown that on the same basis of total nonfat solids, the values for lysine and thiamine in fresh milk were significantly superior to those of the reconstituted instant nonfat milks. Riboflavin values were similar in all products.

THE JOURNAL OF CLINICAL INVESTIGATION

Vol. 39, June, 1960

*Studies on intestinal cholesterol absorption in the human. B. Borgström.—p. 809.

*Experience with the chromic oxide method of fecal marking in metabolic balance investigations on humans. L. G. Whitby and D. Lang.—p. 854.

*The response to the administration of an isotonic sodium chloride-lactate solution in patients with essential hypertension. S. Papper, J. L. Belsky, and K. H. Bleifer. —p. 876.

Intestinal Cholesterol Absorption in Man. The concentration of cholesterol in the small intestine of man varied between 0.03 and 0.76 mg. per milliliter, with an average of 0.34 mg. The percentage of free cholesterol varied between 17 and 100 per cent, with a mean of 71 per cent. Dilution of dietary cholesterol by endogenous cholesterol during digestion varied widely but seemed to be correlated mainly with the admixture of bile with intestinal contents. The total amount of endogenous cholesterol added during digestion ranged from 104 to 1275 mg., with an average of 610 mg. The specific activity of the total lipids of the intestinal contents ranged up to five to six times higher than that of the fed lipid mixture, indicating that glyceride and/or its split products are absorbed more rapidly and more completely than cholesterol. The isotopic data from these experiments indicated that dietary and endogenous cholesterol are completely mixed during digestion. The obvious reason for the large variations of data from sample to sample, even at the same level in the same experimental subject over time, is the complexity of the digestive and absorptive processes, the chyme passing distally in the intestine in small fractions which are individually handled.

Fecal Marking with Chromic Oxide. The application of chromium sesquioxide as an inert indicator in metabolic balance studies on thirty-six patients and four normal volunteers is described. The information gained by this technique is mainly considered in relation to four representative calcium balance investigations. The inert indicator reveals the magnitude of fluctuations in the daily output of feces, when collections are made over both three- and six-day periods; use of chromium sesquioxide corrects for these fluctuations. The technique also corrects for small losses of feces which occur even in "complete" fecal collections, and inclusion of an inert indicator in balance investigations acts as a safeguard against the major losses which occasionally occur in metabolic work. The advantages of the inert indicator technique are considered in relation to simple "time-collections" and "time-marker collections" of feces, and it is proposed that balance investigations can be considerably shortened by its use. The wider application of inert indicators in connection with the analysis of random samples of human feces is considered.

Infusion of Isotonic "Balanced" Solution in Hypertension. The natriuretic response to the infusion of an isotonic solution of sodium-chloride lactate was studied in four normal subjects and six with essential hypertension, under conditions rigidly controlled with respect to the amount of sodium ingested, posture, and time of day. At each of three levels of daily sodium ingestion (10, 150, and 300 mEq), the patients with hypertension had far greater natriuretic response to administered sodium than the normal individuals. Without infusion at the low-salt dietary level, there was no difference in the quantity of sodium excreted between normal subjects and patients with hypertension, suggesting that variations in basic diurnal rhythm probably do not account for the enhanced rate of sodium excretion. The exaggerated natriuresis is not attributable to differences in pre-infusion rates of sodium excretion or to greater increase in serum sodium concentration. In addition, the difference in natriuresis following infusion between the hypertensive and normotensive subjects is not associated with clearly consistent differences in endogenous creatinine clearance or further augmentation in blood pressure. The "abnormal" response to salt administration in patients with essential hypertension remains unexplained.

JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

Vol. 34, June 1, 1960

*A study of nutritional and non-nutritional factors in the incidence of kwashiorkor in a rural area (Singur) of West Bengal. K. Bagchi, K. Haldar, S. R. Choudhury, B. Sanyal, and P. C. Sen.—p. 441.

Kwashiorkor in a Rural Indian Area. Apart from primary protein malnutrition, surveys carried out recently in Africa and other parts of the world have shown that ignorance, faulty habits, and prejudice in infant feeding, environmental factors, infestation, and infection are all very important factors in causing kwashiorkor. In this paper, some of the results of an extensive survey in rural India in families where a child with kwashiorkor was hospitalized are presented. The maximum number of patients were within the one- to two-year age group with almost an equal number of boys and girls. It was observed that gastrointestinal disorders were a very important factor in precipitating kwashiorkor. The mothers interviewed believed that milk was absolutely contra-indicated in case of diarrhea. For a child with protein deficiency, the stoppage of milk protein aggravated the condition, and this vicious cycle continued. A seasonal incidence occurred with cases being admitted between the months of September and December. Worm infestation and intestinal infection are extremely common during the rainy season of June, July, and August. Also, June through October are the "hungry months" in which the economic conditions are the lowest. Hence, by September signs of kwashiorkor begin to occur. A grossly inadequate diet by women during pregnancy and lactation and faulty feeding habits of infants were found. Cheap vegetable proteins, such as the pulses, need to be used and to be introduced to the child early. Other preventive measures needed include improved sanitation.

THE JOURNAL OF NUTRITION

Vol. 71, July, 1960

*Amino acid requirements of men and women. 2. Relation of lysine requirement to sex, body size, basal caloric expenditure and creatinine excretion. H. E. Clark, S. P. Yang, W. Walton, and E. T. Mertz.—p. 229.

*Nutrition and longevity in the rat. 1. Food intake in relation to size, health and fertility. B. N. Berg.—p. 242.

*Nutrition and longevity in the rat. 2. Longevity and onset of disease with different levels of food intake. B. N. Berg and H. S. Simms.—p. 255.

*Amino acid balance and imbalance. 4. Specificity of threonine in producing an imbalance in diets deficient in niacin and

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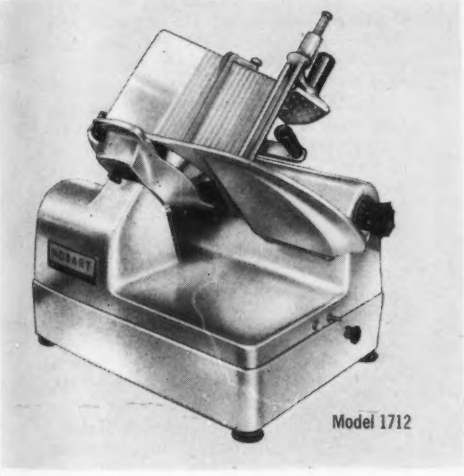

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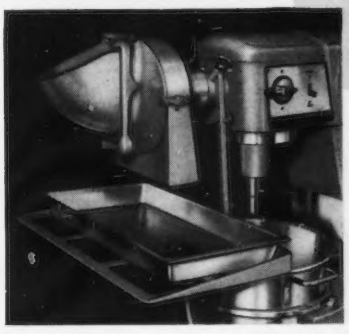

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tryptophan. M. A. Morrison and A. E. Harper.—p. 296.

*The amino acid composition and the nutritive value of proteins. 2. Amino acid mixtures as a dietary source of nitrogen for growth. P. B. Rama Rao, V. C. Metta, and B. C. Johnson.—p. 327.

Energy requirements of the adult rat fed an amino acid diet. V. C. Metta, J. A. Firth, and B. C. Johnson.—p. 332.

Lysine Requirements of Adults. The minimum quantities of lysine that maintained nitrogen equilibrium were estimated for five men and five women consuming 9.0 gm. nitrogen as cereals, purified amino acids, and diammonium citrate. Requirements of men varied from 400 to 1200 mg. and of the women from 300 to 700 mg. The mean lysine requirement of ten men was 750 mg. and of ten women, 550 mg. These mean values are useful in estimating needs of population groups but not of individuals. Regression of lysine requirement of men on body weight, metabolic body size, surface area, and creatinine excretion was highly significant, and on basal caloric expenditure was significant. Little correlation was found between lysine requirements of the ten women and any physical or metabolic measurements, but regressions of lysine requirement of eight women on body weight and creatinine excretion were highly significant, and on metabolic body size and surface area were significant.

Food Intake and Growth in Rats. The size, health, and fertility of rats fed a restricted diet were compared with those fed *ad libitum*. Restriction of food intake of rats to levels 33 and 46 per cent below the *ad libitum* level from weaning to 800 days of age resulted in 5 to 7 per cent reduction in tibia length, 6 to 13 per cent reduction in body length, and 25 to 40 per cent reduction in body weight. The difference in body weight was due largely to absence of excess body fat which developed in unrestricted animals. The latter ate more than needed for energy output. Health and female fertility were better in rats kept on dietary restriction than in unrestricted rats attaining maximum size. Food utilization was more efficient in males than in female rats.

Food Intake and Disease in Rats. This study deals with the onset of disease, the longevity, and the mortality of the rat as influenced by the level of food intake. When food intake was restricted by 33 or 46 per cent, longevity was extended and onset of disease was delayed. At 800 days of age, only 48 per cent of unrestricted male rats were alive as compared with 81 to 87 per cent survival for restricted animals. Most of the females remained alive at this age. Comparative incidence of tumors and of cardiac, renal, and vascular lesions was noted. In males, frequency of lesions in unrestricted rats was 100 per cent as compared with 64 per cent and 24 per cent for the 33 per cent and 46 per cent restricted rats respectively. All of the females surviving to 800 days on restricted diets were free from disease, while 57 per cent of the unrestricted ones had lesions. Hormonal as well as dietary factors seem to play a role in the greater longevity of the female.

Amino Acid Imbalance. An imbalance of amino acids can be produced in diets containing 8 per cent of casein and L-cystine or DL-methionine by the addition of 0.36 per cent of DL-threonine. This imbalance causes a depression in the growth rate of rats which can be corrected with either niacin or tryptophan. In the present studies of a variety of amino acids tested, only threonine was effective in causing a growth depression. Phenylalanine, previously found to cause growth depression, was not effective, nor were leucine, lysine, valine, isoleucine, glutamic acid, or arginine unless they were in combination with threonine.

Amino Acid Diets. The growth of rats on protein and amino acid rations, and the effects of fat content and the type of carbohydrate were studied. An amino acid diet providing the minimum requirements of the essential amino acids plus non-essential amino acids and fed at a 10 per cent protein level (N × 6.25) promoted a growth rate of 4.4 gm. per day when fed *ad libitum*. No previous reports have been found of weight gains of over 4 gm. per day with amino acid diets at any total nitrogen level. An amino acid diet containing 50 per cent of fat resulted in growth failure and a diseased appearance not curable by extra oral supplementation of B-vitamins. Replacing starch by dextrin in the amino acid diet resulted in improved food intake and weight gain of rats, and it could be shown that dextrin also increased the efficiency of protein utilization.

THE JOURNAL OF PEDIATRICS

Vol. 56, June, 1960

*Water requirements for renal excretion in full-term newborn infants and premature infants fed a variety of formulas. P. L. Calcagno and M. I. Rubin.—p. 717.

*The pattern of early growth in Sukumaland, Tanganyika. D. S. McLaren.—p. 803.

*Volume and composition of the body fluid compartments in severe infantile malnutrition. E. Kerpel-Fronius.—p. 826.

Water Needs of Infants. Full-term infants, two to four days of age fed whole cow's milk, low osmolar milk, modified cow's milk, and human milk *ad libitum* and kept in an environment of 70° to 80°F., had a urine volume which measured approximately 25 per cent of the fluid intake. Fifty-seven per cent of the urinary milk was expendable water; the highest amount of expendable water (82 per cent) occurred in the infants fed low osmolar milk. These data indicate that in normal infants in this age period, when extra renal water losses are not excessive, the *ad libitum* intake of the formulas studied do not impose a drain on the stores of body water. In the six- to nine-day-old, full-term infants fed transitional human milk *ad libitum*, the urinary volume was approximately 45 per cent of the fluid intake; the intake of these infants was considerably larger than that of the two- to four-day-old infants. On this feeding, the expendable renal water was 82 per cent of the total urine volume. Premature infants ten to twenty days of age, who weighed between 1.4 to 2.1 kg. and who were fed low osmolar milk, excreted 52 per cent of their fluid intake, 86 per cent of which was expendable urinary water. Even though a large proportion of the urinary water excretion of full-term, new-born infants and ten- to fifty-six-day-old premature infants fed a formula of whole cow's milk is expendable, the margin of safety with such a formula with regard to water requirements would be greatly reduced when extra renal water losses are excessive. The feeding of undiluted whole cow's milk is not recommended for this age period.

Growth in Tanganyika. Child welfare clinics in Mwanza and Misungwi provided records of the growth and feeding practices of 385 African children during the first eighteen months of life. The Mwanza data are almost identical with those from Kampala, but those from rural Misungwi indicate inferior growth. The different effect of intercurrent infections in the well and the ill nourished is illustrated, and a special study of a few infants shows how exceptional growth may be attained under favorable circumstances. An attempt is made to explain the differences in growth observed by a consideration of such varying factors as diet, feeding habits, social conditions, infectious diseases, genetic characteristics, and influence of clinics.

Body Fluid Compartments in Malnutrition. The following observations were made in infants and children suffering from malnutrition of different causes: A percentage increase in extracellular fluid volume in relation to the actual body weight was the only consistent change in the extracellular fluid compartment. The occurrence of edema was associated only with malnutrition due to low-protein intake. In patients with edema, hypoproteinemia and reduced enzymatic activity of the duodenal juice were invariably observed. The important factors leading to formation of edema in malnourished infants and children were a decrease in plasma colloid osmotic pressure and a loss of skin elasticity. Ineffective cardiac and perhaps renal compensatory capacities in these malnourished children were thought to contribute to formation of edema when there was too rapid expansion of the intravascular volume by infusions of plasma, intercurrent infections, or overfeeding. The occurrence of diarrheal disease in patients with malnutrition may cause hyponatremia or cerebral anoxia from circulatory shock. These alterations were, however, less com-

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mon than in normal infants suffering from diarrhea. Because of lower body metabolism in malnutrition, such infants were better able to withstand the circulatory stasis and noxia. These patients had an accelerated wasting of body substance in diarrhea because they had no caloric reserves from which to draw during a period of decreased food assimilation. Malnourished infants were subject to death from sudden hypoglycemia resulting in respiratory paralysis.

THE LANCET

No. 7140, July 2, 1960

*Fat-mobilising and ketogenic activity of urine extracts: Relation to corticotrophin and growth hormone. T. M. Chalmers, G. L. S. Pawan, and A. Kekwick.—p. 6.

No. 7142, July 16, 1960

*Idiopathic hypercalcaemia of infants.—p. 138.

Urine Extracts. In people who are actively mobilizing and utilizing fat, the urine contains a polypeptide-like substance which causes transient hypoglycemia, ketonemia, and increased mobilization and catabolism of fat in mice, with depletion of body stores. At a concentration of less than 1 mcg. per milliliter, the material is active *in vitro* in releasing free fatty acids from rat adipose tissue. The pituitary is necessary for its production. It is apparently neither growth hormone nor corticotrophin.

Idiopathic Hypercalcemia of Infants. Idiopathic hypercalcemia of infants may reasonably be regarded as a syndrome which mimics closely the effects of hyper-vitaminosis D. Contributory factors appear to be the ingestion of cow's milk (in which the concentration of calcium is at least four times higher than in human milk), the taking of alkalis, infection, or the administration of large doses of vitamin D, sometimes unwittingly, in fortified infant foods. It is reassuring to learn from a follow-up study of thirteen benign cases of infant hypercalcemia that there was no evidence of a persisting impairment of renal function.

NEW ENGLAND JOURNAL OF MEDICINE

Vol. 262, June 30, 1960

*Shöshin beriberi. P. L. Wolf and M. B. Levin.—p. 1302.

Shöshin Beriberi. Beriberi obviously is not a disappearing disease, but the pattern of incidence has changed. Shöshin beriberi is probably not an uncommon disease in the U.S., but the few reports in the English literature indicate that it is rarely diagnosed. Cardiac beriberi is arbitrarily divided into the acute fulminant form and the chronic type. Shöshin beriberi is the fulminant form, which is characterized by acute cardiovascular collapse. Death may occur within hours. The Shöshin form of the disease comprises less than 5 per cent of the cases of beriberi with cardiac involvement seen in the Orient. A few reports of this type have appeared in the American literature. The author has recently observed two cases of Shöshin beriberi. The first was diagnosed only at autopsy. The other was recognized clinically, and the patient made a dramatic recovery with intravenous thiamine therapy. It is believed that the lack of thiamine causes a change in the biochemical reactions in the citric acid cycle. Thus, pyruvate is not utilized and methylglyoxal, an intermediary carbohydrate product, accumulates. This substance may act as a toxic substance to induce the picture of Shöshin beriberi.

NUTRITION

Vol. 14, Summer, 1960

*The use of radioactive fat in the study of absorption. M. Harrison.—p. 54.

*The value of two new preparations of cow's milk in the feeding of premature babies. M. Crosse, P. G. Wallis, A. Low, and A. A. Henly.—p. 65.

Fat Absorption Tests. The detection of patients with malabsorption of fat, but without clinically obvious steatorrhea is sometimes difficult. Diagnosis mainly rests on the demonstration of excess fat in the feces, using the fat balance test. However, this test is tedious and complicated and requires the assistance of a trained staff. Some of these problems can be overcome by using, instead of ordinary fat, fat which has been labelled with radioactive iodine. The technique employed in the radioactive fat test is described, along with the results. The test does not replace the chemical fat balance test, but is an adjunct to it.

Milk Preparations for Premature Babies. Observations in England in 1954 indicated that when human milk was not available for premature babies, the best substitute was a half-skimmed dried milk. Since then, two new products have been introduced: S.M.A. (available in the U.S. since 1919), and Regal half-skimmed evaporated milk (available in Canada for about fifteen years). Tests with these two products and human milk were made on sixty-nine premature infants. The procedures followed are described. Progress was judged by general observation, rate of weight gain, hemoglobin and serum protein levels, stool cultures, the number of infections, and the incidence of death. All three diets were equally well tolerated. As in the previous study, human milk appeared to be the best food for premature babies. Both products were suitable foods; the half-skimmed evaporated milk was easier to prepare and was slightly cheaper. Although half-skimmed dried milk was recognized in the previous study as a suitable food, it was found that the two newer products tested here were easier to prepare, and the buttocks were less likely to become sore.

NUTRITION ABSTRACTS & REVIEWS

Vol. 30, April, 1960

*Infant feeding: comparison of breast and artificial feeding. F. C. Aitken and F. E. Hytten.—p. 341.

Comparison of Artificial and Breast-Feeding. A tendency for the incidence and duration of breast-feeding to decrease with increasing sophistication of the community is seen on a secular and on a geographical basis. A brief account is given of current practice in artificial feeding of normal healthy infants, and recent studies are reviewed. It would appear that on the basis of weight gain, there is little to choose between simple mixtures of whole cow's milk—fresh, dried, or evaporated—and water with or without added carbohydrate and elaborate mixtures imitating the composition of human milk; nor does the carbohydrate chosen seem to matter. On the average, infants weaned later from the breast have been found to gain less weight in the first year than infants weaned earlier. Caloric intake by thriving breast-fed infants may be less. This review shows that with modern standards of hygiene, artificial feeding on simple mixtures of cow's milk, water, and sugar is a satisfactory substitute for breast-feeding, as far as can be judged from growth and healthy in infancy. There is naturally no suggestion that breast-feeding well done is inferior to artificial feeding, but evidence from average energy intake and weight gain suggests that less than the best is perhaps being accepted as satisfactory breast-feeding.

NUTRITION REVIEWS

Vol. 18, July, 1960

*Factor 3, selenium and vitamin E. K. Schwarz.—p. 193.

Vol. 18, August, 1960

*Aberrant lipogenesis. D. G. Cogan and T. Kuwabara.—p. 225.

Factor 3, Selenium, and Vitamin E. Factor 3, first described as an unknown agent protecting rats against dietary necrotic liver degeneration, is now recognized as preventing a wide spectrum of deficiency diseases, such as multiple necrosis in mice and muscular dystrophy and heart necrosis in mink. In some of these fatal diseases, Factor 3 has displayed a remarkable partnership with vitamin E and L-cystine. In fact, it was designated "Factor 3" to indicate that it was the third dietary agent found to be effective against liver necrosis. Meanwhile, the role of L-cystine has appeared in a new light; this sulphur amino acid owes its potency largely to a minute contamination with a trace of Factor 3-active selenium. Analyses of Factor 3 preparations of greatly divergent activities revealed that the biopotency was correlated to the selenium content. While the lack of Factor 3 alone, or that of vitamin E by itself, produces often relatively mild chronic diseases, the simultaneous deficiency of both leads invariably to acute, impressive tissue damage, and death.

Aberrant Lipogenesis. The formation of microscopically visible fat by cells other than adipose tissue is called aberrant lipogenesis. This article out-

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lines experiments and interpretations of this process. Although studied first and most extensively in the cornea, aberrant lipogenesis is a widespread phenomenon with, possibly, particular relevance to fatty degeneration and atheromatosis. It is a dynamic process of fat synthesis, culminating in glyceride esters, clearly distinguishable from phagocytosis of preformed fat. Of perhaps greater biologic significance than either fatty degeneration or atheromatosis is the usefulness of aberrant lipogenesis to the body economy. Free fatty acids are potent necrotizing agents, and it would appear imperative to have a mechanism for promptly converting those which become available into an innocuous form. In the blood stream, there is abundant evidence that physiologic quantities of fatty acids are bound promptly to albumin and thereby detoxified, but in the tissue the mechanism appears to be one of rapid esterification into a neutral and, therefore, innocuous triglyceride. In this form, it may either remain indefinitely as an inert fat reservoir or it may be disposed of by the leisurely process of phagocystosis. According to this concept, which is admittedly speculative, aberrant lipogenesis serves a biologically useful function in protecting the body from one of its own, potentially toxic constituents.

PAPUA AND NEW GUINEA MEDICAL JOURNAL

Vol. 4, April, 1960

*Kwashiorkor in the highlands of New Guinea. J. Kariks.—p. 5.

Kwashiorkor in New Guinea. A basic description of kwashiorkor as it occurs in the highlands of New Guinea is given. The signs and symptoms are compared with those seen in India, Africa, and Jamaica. Ignorance and lack of easily accessible protein-rich foods are mainly responsible. For the treatment, whole blood and serum albumin are recommended for initial speedy recovery. For full recovery, protein-rich food, sulfaguanidine, antibiotics, and antimalarials are essential. For prophylactic purposes, family poultry industry is recommended as the simplest source of protein-rich foods.

PEDIATRICS

Vol. 26, July, 1960

*Comparative study of adequacy of protein from human milk and cow's milk in promoting nitrogen retention by normal full-term infants. S. J. Fomon.—p. 51.

*Vitamin B_6-dependency and infantile convulsions. C. R. Scriver.—p. 62.

Human and Cow's Milk. A formula containing protein from cow's milk at a concentration similar to that of human milk was compared with human milk in a study using infants less than six months of age. Eight normal, full-term infants were studied. Total excretion of nitrogen and urinary excretion of nitrogen were determined. Growth curves were kept. Blood analyses were made. Metabolic studies were conducted. The results showed that growth of all the infants was within normal limits. Both the mean volume of intake and the mean concentration of nitrogen in the formula were slightly less than in the infants fed pasteurized human milk. It is concluded that the two types of feedings have similar abilities to promote retention of nitrogen by infants.

Vitamin B_6 and Infantile Convulsions. A study was made of a patient with the rare convulsive disorder termed "vitamin B_6 dependency." Another child showing similar symptoms is thought to have had the same disease. In the first patient, by giving the child large doses of vitamin B_6, all convulsions stopped. The second child was not diagnosed soon enough and died. Studies were conducted on the first child, and virtually all the findings could be accommodated by a concept which involves increased requirement for Vitamin B_6 by an apo-enzyme system in the brain. An unusually high daily requirement of 10 or 11 mg. pyridoxine supplementation was required for the surviving child. This disease may be an inborn error of metabolism involving an enzyme of the brain.

PHYSIOLOGICAL REVIEWS

Vol. 40, July, 1960

*Nutrition and athletic performance. J. Mayer and B. Bullen.—p. 369.

Glycogen metabolism. D. Stetten, Jr., and M. R. Stetten.—p. 505.

Nutrition and Athletic Performance. The optimum diet for an athlete in training is not essentially different from that of any normal individual; however, certain modifications may seem advisable for the particular circumstances under which the athlete is to perform. The diet should comply with the needs for the individual in terms of growth, maintenance, and superimposed activity requirements. Prior to training season, it is desirable to assess the nutritional status of the athlete to determine specific needs for weight gain or loss so that the dietary may be planned accordingly. When the sports practiced are particularly protracted and exhausting, four or five lighter meals may be preferable to three larger meals. High-carbohydrate rather than high-fat meals are recommended if the sport demands endurance and prolonged activity, if the diets are consumed several days before the event. Wide variations in protein intake do not seem to influence performance capacity. Intake will be adequate if the diet is well balanced. The value of supplementation with vitamins, minerals, or gelatin has not been definitely substantiated. Because of the deleterious effect on coordination, alcohol should be generally avoided during training. Use of salt above the usual intake at meal times appears to be necessary only under unusually hot climatic conditions.

PUBLIC HEALTH REPORTS

Vol. 75, July, 1960

*Strontium 90 content of wheat. A. S. Flemming.—p. 674.

Strontium 90 in Wheat. This statement by Secretary of Health, Education, and Welfare Flemming contains data relating to the strontium 90 content of wheat and wheat products from the 1958 crop. The Public Health Service, the Food and Drug Administration, and the Federal Radiation Council have reviewed the data and advised that the strontium 90 intake of the U. S. population from all dietary sources does not constitute a public health hazard warranting any regulatory action at present. The guideline for average daily intake of strontium 90 used at present is 33 micromicrocuries per liter or kilogram of total dietary intake averaged over a period of one year. The average weight of food and water ingested per person per day in the U. S. is 2.2 kg. If all food and water contained this concentration, the daily intake of strontium 90 would be 73 micromicrocuries. In calculating guidelines for specific averages, recommendations allow departures as much as three times such averages. In a given case, this could be equivalent to an individual average of 220 micromicrocuries of strontium 90 per day. It would be highly improbable that any individual could attain an average of 73 micromicrocuries of strontium 90 per day for life, let alone the higher figure of 220 micromicrocuries.

ROYAL SOCIETY OF HEALTH JOURNAL

Vol. 80, May-June, 1960

*Strontium 90 in milk. H. E. Monk.—p. 120.

*Diseases and toxaemias transmissible to man from poultry and poultry products. P. H. deGruchy.—p. 139.

*Bacteriological problems in broiler preparation and storage. E. M. Barnes.—p. 145.

*Nutrition and cardiovascular disease. H. M. Sinclair.—p. 190.

*New foods for world needs. N. W. Pirie.—p. 198.

Strontium 90 in Milk. The second report of the Radio-biological Laboratory of the Agricultural Research Council of Great Britain is entitled "Strontium 90 in Milk and Agricultural Materials in the United Kingdom 1958-1959." This publication continues the account of the strontium 90 content of the national milk supply. Considerable work on the examination of soil and herbage in various parts of the country is reported.

Transmissible Diseases from Poultry. Few of the diseases which can infect both poultry and man are common in either host. Although transmission is possible, it is unlikely to occur under normal conditions. In this paper, the diseases and conditions which, at least theoretically, could be passed from poultry to man at some time from hatching to the consumer's table are considered. With the exception of salmonellosis, it is probably safe to say that in Great Britain,

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poultry are unlikely to be a serious source of disease in man. However, the possibility of contamination of carcasses by factory staff must not be ignored, and poultry should be reared, killed, and processed under the most hygienic conditions that it is possible to maintain.

Broiler Preparation and Storage. A chicken should not only be free from pathogenic organisms, but it should reach the consumer in a sound bacteriologic condition. Achieving this aim involves many problems, both in the control of micro-organisms in the poultry processing plant and in the bacteriologic techniques used for determining the condition of the processed chickens. Consideration of the latter problem shows that there is disagreement as to correct sampling procedures and the portion of chicken to be sampled. The interpretation of results is also difficult, particularly with stored refrigerated chickens, where one is concerned both with organisms of fecal origin and with those organisms ("psychrophiles," or "cold tolerant") which can grow rapidly at refrigerator temperatures and spoil the chicken.

Nutrition and Cardiovascular Disease. In this paper an elementary explanation of basic facts concerning what cardiovascular disease is, the prevalence of the disease, comparison between countries, how the disease arises, non-dietary environmental factors, and diet are considered. There is fairly general agreement that diet is important in atherosclerosis and coronary heart disease and that the relevant factor is fat. There is much less agreement about the type of fat. Although there is no proof that relative deficiency of essential fatty acids (EFA) causes atherosclerosis or coronary heart disease, there is much circumstantial evidence. Higher dietary EFA and lower non-EFA are achieved by increasing the amount of unprocessed unsaturated fats (vegetable seed oils—except coconut and olive—liver, kidney and other offals, poultry, fish, nuts, special margarines and certain "filled" milks) at the expense of foods relatively rich in non-EFA (processed meats, beef fat, butter and cream, ice cream, ordinary margarine, mutton fat, lard).

New Foods for World Needs. Hunger can be expressed as a fraction and people divided by food. This can be attended to by either having fewer people or more food, or both. The author concentrates on balancing protein and people. Easily synthesized foods are considered, but alcohol is the only one which probably would be accepted. Two complementary methods for improving primary food production are to make more and to use better what is made. Other means are discussed for getting more food, such as growing yeasts and bacteria on various sugar sources and possibility of extracting the edible protein from leaves.

SCIENCE

Vol. 132, July 29, 1960

*Eating or drinking elicited by direct adrenergic or cholinergic stimulation of hypothalamus. S. P. Grossman.—p. 301.

Eating and Drinking and the Hypothalamus. A double cannula system, allowing repeated stimulation of central structures with crystalline chemicals was developed. This technique was employed to study the effects of adrenergic and cholinergic stimulation of the lateral hypothalamus of rats. Drug-specific effects on the feeding and drinking mechanisms were observed. The results indicate that cell concentrations active in the regulation of both food and water intake are present in the lateral hypothalamus. The cell concentrations exerting this control appear to be highly localized but not clearly separate from each other, since stimulation of identical loci in the same animal can evoke both forms of behavior. The feeding mechanism appears to be selectively activated by adrenergic stimulation, while the drinking mechanisms appear to respond selectively to cholinergic stimulation.

WHO CHRONICLE

Vol. 14, July, 1960

*The hygiene of milk and its products. Reports of Expert Groups.—p. 282.

Vol. 14, August, 1960

*Endemic and epidemic goitre in Italy.—p. 320.

Hygiene of Milk and Its Products. Problems of milk contamination, whether by micro-organisms, radiation, insecticides, or antibiotics, are under constant study by responsible national authorities and the international organizations concerned. A recently published report of the Joint FAO/WHO Expert Committee on Milk Hygiene provides up-to-date information on various aspects of the sanitary production of fluid milk and also gives special attention to the hygiene of various milk products and to the problems involved in producing safe milk and allied products in warm countries. Of the diseases transmitted through milk, staphylococcal enterotoxin poisoning is being recognized with increasing frequency.

Endemic and Epidemic Goiter in Italy. Goiter is not a static disease in Italy. It was widespread in the last century, then its prevalence decreased. Now goiter has become more common in central and southern Italy and has flared up in localities of northern Italy which had for some time appeared to be free from it. In certain areas, the epidemics seem to have left endemic goiter in their train. The phenomenon of epidemic goiter in Italy has given rise to observations and research that are not paralleled in other countries, but so far its origin remains unexplained. Then environmental factors traditionally considered to influence the disease—water, malnutrition, deficiencies, consanguinity, and shortage of iodine—do not seem to be respon-

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sible for endemic goiter or for the epidemics in Italy.

AMERICAN RESTAURANT

Vol. 44, August 1, 1960

*Put heartier appeal of instant potatoes on breakfast plate.—p. 38.

*Know your onions. C. E. Blackburne.—p. 44.

*Do's and don'ts for better restaurant service. J. B. O'Meara. p. 48.

Instant Potatoes for Breakfast. There are still some hearty eaters to whom potato dishes at breakfast will appeal. The instant potato is especially suited for this purpose and can be prepared in less time than an order for eggs or ham. Suggested are deep-fried potato balls, hash browns, the "poor man's scrambled eggs."

Onions. Onions are practically indispensable as seasoners or salad ingredients. There is the dainty white pearl onion; the golden yellow with a "bite"; the sweet, mild Spanish and Bermudas; and the colorful Italian. How often, though, are onions prepared as a hot vegetable? Interesting quantity recipes are listed here for onion-peanut casserole, onion pie, onion soufflé, curried baked onions, glazed onions with almonds—to name but a few. Directions and recipes for the strong man of the onion family—garlic—are included, too. Statistics on the use of instant vs. raw onions are given in table form.

The Attractive Waitress. Six photographs illustrate six points of appearance which should be noted by waitresses. They involve hair-do, cleanliness, neatness of dress, elimination of flashy jewelry and ornamentation, and offensive mannerisms.

COLLEGE AND UNIVERSITY BUSINESS

Vol. 29, July, 1960

*Fried chicken doesn't have to be fried.—p. 44.

Oven Fried Chicken. Fried chicken is high in student appeal, but not readily prepared for quantity service. Several modifications have been developed, however. One method is to brown the chicken in fat and then finish it in the oven in a sauce or other liquid (water; sour cream; condensed celery, mushroom or tomato soup; jelly or cranberry sauce). A recipe is given for a mildly flavored barbecue sauce to be brushed on chicken that is being oven fried or to braise chicken that has been browned. A new method of oven frying employs evaporated milk and seasoned corn cereal crumbs. Directions are given for this method and also for smothered chicken.

DRIVE-IN MANAGEMENT

Vol. 19, July, 1960

*Purchasing file: for paper cups, containers, plates.—p. 25.

The Best Paper Cup, Container, Plate. This purchasing file summarizes the many different paper products available and was prepared with the cooperation of the Paper Cup and Container Institute and the Paper Plate Association. The variety of cups described include cold drink cups, water cups, big drink cups, hot drink cups, and portion cups. Hot and cold food containers may be used for baking and serving casserole dishes, pot pies, and desserts, such as custards; they are suitable for storing, freezing, and packaging. They all come with lids. Practical for large orders are paper tubs. One of the newer items on the market is the paper bowl, either molded or pressed, ideal for soups and cereals. Dishes and plates are described. Charts and tables are included which give: stock sizes of paper cups and containers; portioning guides for portion cups and for hot and cold food containers; and estimated space requirements for paper cups, containers, and plates.

FROSTED FOOD FIELD

Vol. 30, June, 1960

*The freezing of milk: a new process. W. G. Wearmouth.—p. 15.

Freezing Milk. To appreciate fully the problem of milk preservation, one must be aware of developments to date. The author reviews the situation, mentioning the processes used in preparing dried, sterilized, condensed, and evaporated milk. When it comes to freezing milk, attempts over the past thirty years have been unsuccessful in developing a product of good characteristics and long keeping qualities. Theories about the nature of the structure of the milk emulsion are presented, with the observation that there is a marked break-down of the original emulsion when the frozen product is thawed (the fat separates from the emulsion). Various attempts to overcome this and other problems are described. It was decided to explore the effect of ultrasonic radiations on the milk. The four steps of the process are: (a) pasteurization of the milk, (b) immediate ultrasonic treatment of the milk under prescribed conditions; (c) immediate packaging of the treated milk and freezing quickly to 5°F. (freezing must be completed within the hour), and (d) storage of the frozen milk at temperatures below 8°F. where it will keep indefinitely. A commercial plant has been built in England for production of the frozen milk. The product is packaged in polythene bags. Trial shipments to Middle East countries have been well received; shipping companies are also finding the milk satisfactory.

HOSPITAL MANAGEMENT

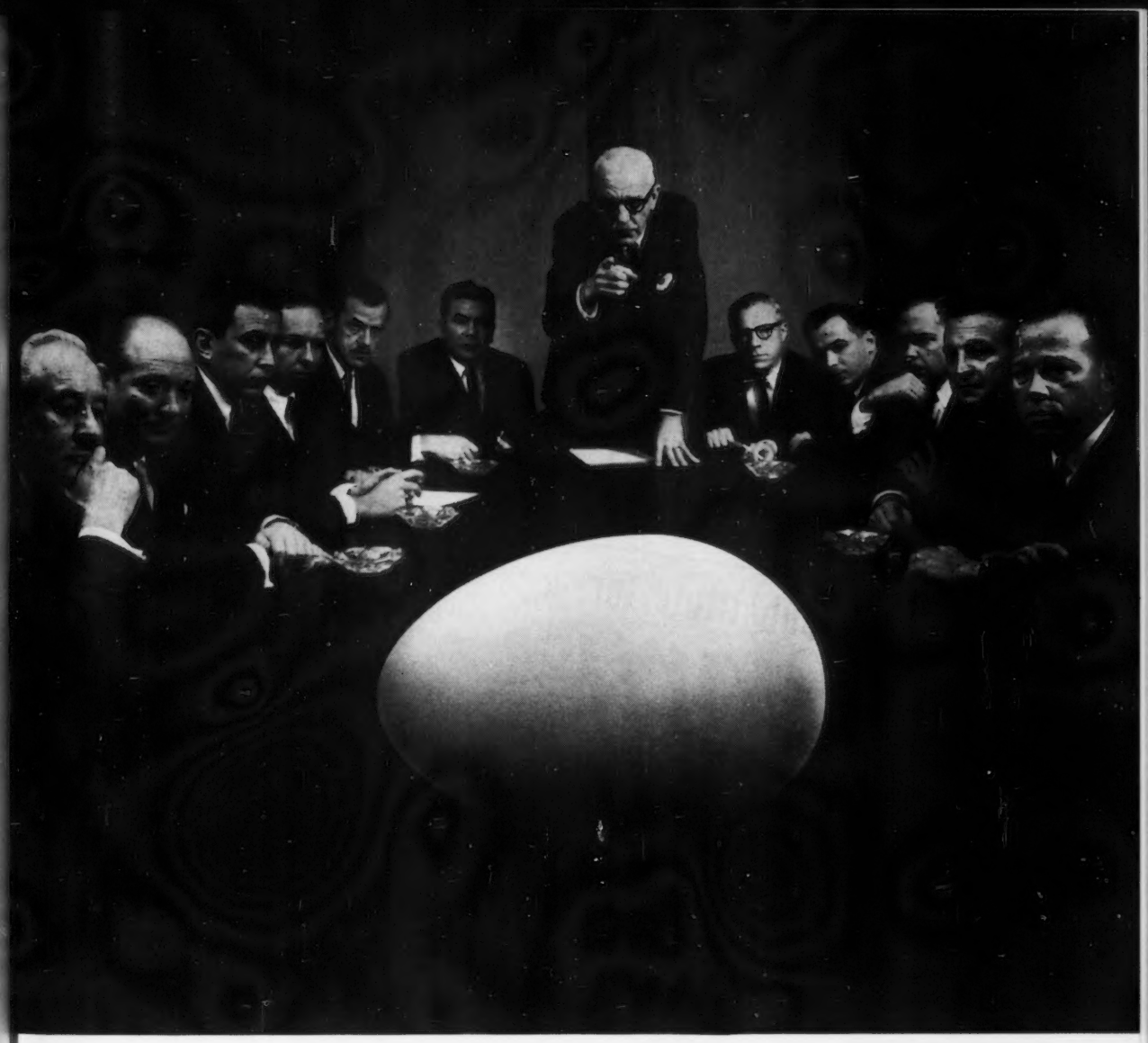
Vol. 90, July, 1960

*Salads.—p. 76.

Vol. 90, August, 1960

*Round-the-clock food service. B. A. Rogers.—p. 29.

Salads. Attractive salads depend on perfectly ripened fruit, young, tender greens, and form or arrangement. In ordering fruit, be specific as to variety name and grade; be conscious of the



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degree of ripeness when the fruit is received. In serving salads, plan and set up methods of portion control. Even garnishes should be preportioned and placed on the salads at the last minute with small tongs, a special fork, or spoon. For unusual salad ideas, design fresh fruit salads after favorite soda fountain specialties (a banana split salad is illustrated). Quantity recipes are given for sun ray salad (melon, blueberries, strawberries, Swiss cheese, sherbet) with orange fruit salad dressing; plum slim salad (only 155 calories); pink lady salad (a molded salad using strawberries); and banana split salad with creamed mayonnaise dressing.

Hospital Food Service Round the Clock. Methodist Hospital, Indianapolis, has installed a 24-hr. automatic food and beverage facility to replace an 8 a.m. to 8 p.m. soda fountain (which was difficult to staff and was operating at a monthly loss of around $500). This new unit extends food service provided by the hospital cafeteria and is available for the estimated 5000 persons who pass in and out of the hospital every day. Twelve coin-operated vending machines serve sandwiches, salads and fresh fruits, hot canned foods, pastry, fresh brewed coffee, carbonated beverages, milk, ice cream, cigarettes, candy, and cookies. An automatic dollar-bill changer and two coin changers are part of the installation. Seventy-two persons may be seated at sixteen tables. The vending service assumes all responsibility for ordering, stocking the equipment, and mechanical maintenance; it keeps an attendant on duty to make sure the vendors are filled, to keep the room in order, and to take care of special requests of customers. Patronage does not build up to "rush" periods during certain hours (as is the case in the cafeteria) but remains relatively steady. The hospital receives a percentage of gross according to the type of machine (a gain of $5000 has been budgeted for 1960). One section of the article deals with questions and answers concerning automatic food facilities (how to select the right vending specialist, physical requirements for the installation, and so on).

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HOSPITALS

Vol. 34, July 1, 1960

*Guarding the "fresh" in fresh vegetables.—p. 72.

Fresh Vegetables. The secret of improving the quality of cooked fresh vegetables starts with purchasing. One's attitude toward pricing is a factor. Given two prices for the same grade of a product, the price buyer may select the cheaper vegetable without realizing that the price was based more on the condition of the vegetable than on the grade. Also, the price buyer might insist on a lower-priced grade of produce without analyzing the cost of waste. Another factor is good working relationships with dealers. Three dealers are usually adequate to give good price and quality checks. Purchase specifications are another influence on quality. Hints on specifications and receiving department procedures are included in the article. In discussing trimming and peeling of fresh vegetables, it is pointed out that most mass feeding operations could effectively use 15 to 20 per cent of the normally discarded portions of asparagus, cauliflower, and celery in soups and stock. Small-batch, low-water, and steam cookery methods are considered, and vegetables suitable for baking are listed. Four quantity carrot recipes are included to illustrate the use of this vegetable in normal; sodium-restricted; fat-restricted; bland; low-fiber; and soft diets. At the end of each recipe are listed other vegetables that may be substituted.

INSTITUTIONS

Vol. 47, August, 1960

*Research and development: a challenge for growth. F. A. Koomanoff and G. W. James.—p. 6.

Expert outlines tips on purchasing. V. W. Godlesky.—p. 28.

*A progress report on kitchen ventilation.—p. 38.

*Instant coffee: pros and cons.—p. 42.

*The food service equipment industry at the crossroads. A. C. Avery.—p. 50.

Research in the Food Industry. Re-

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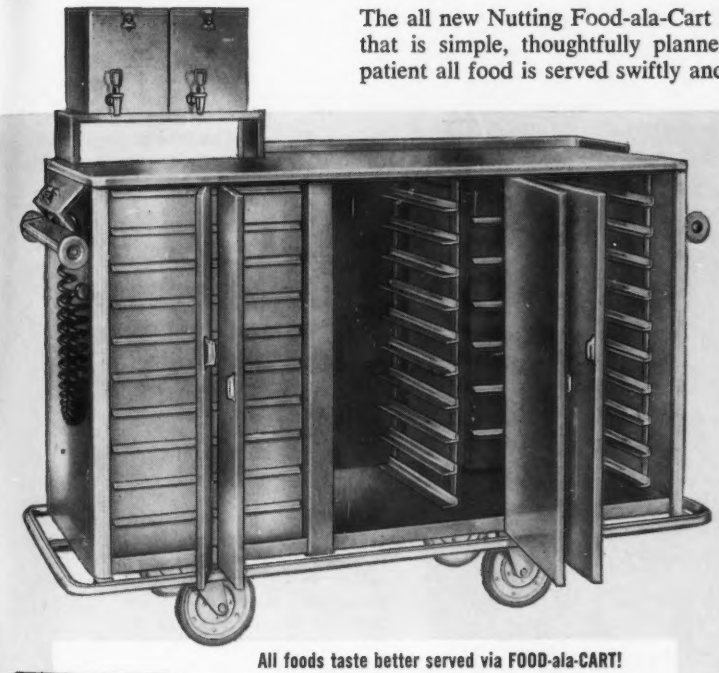

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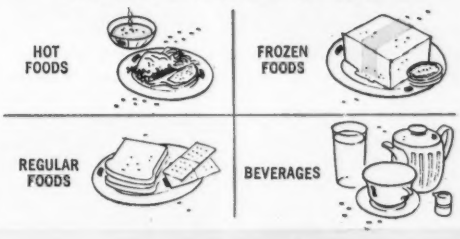

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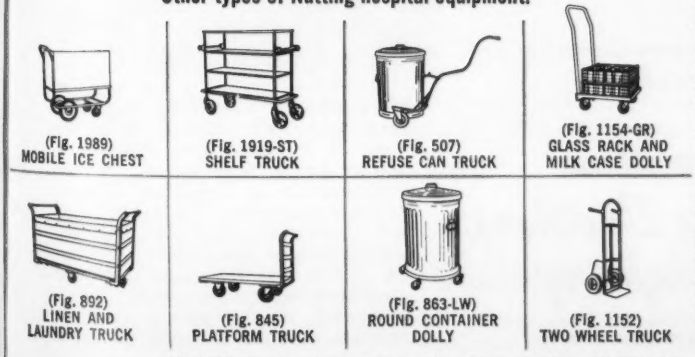
(Fig. 1989) MOBILE ICE CHEST
(Fig. 1919-ST) SHELF TRUCK
(Fig. 507) REFUSE CAN TRUCK
(Fig. 1154-GR) GLASS RACK AND MILK CASE DOLLY
(Fig. 892) LINEN AND LAUNDRY TRUCK
(Fig. 845) PLATFORM TRUCK
(Fig. 863-LW) ROUND CONTAINER DOLLY
(Fig. 1152) TWO WHEEL TRUCK

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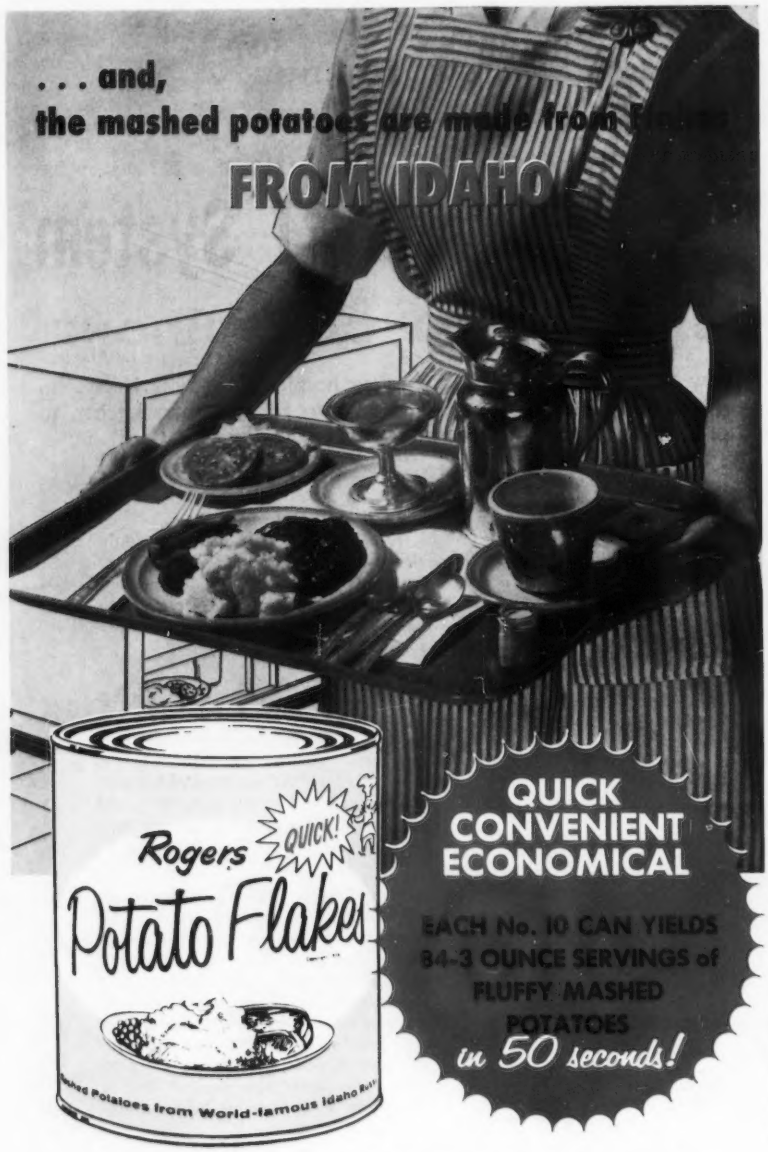

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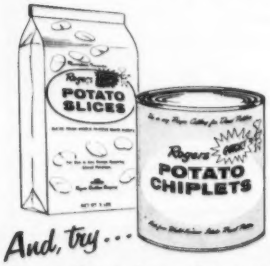

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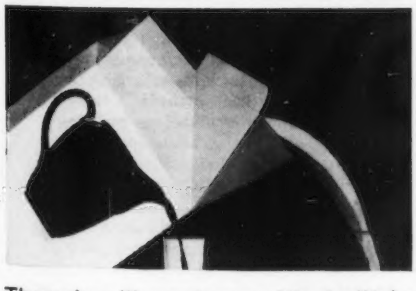
search is starting to give many exciting answers to problems of product reliability and uniformity in the food industry. Such developments as the peeling of apples by infra-red heat, determining the qualities of certain foods (apples, pears, oranges, grapefruit) by sonic energy, the aging and tenderizing of meat "on the hoof") are cited. Exciting as these activities may be, statistics show that approximately ten other major industries spend more on research and development than the food industry. Furthermore, in terms of research and development expenditures as a percentage of sales, a 1955 ranking placed the food industry twenty-third among twenty-four industries. Although approximately $100 million annually is being spent, nearly all of this effort is directed toward food for home consumption rather than to the institutional market. The institutional market can be divided in two segments —the involuntary, represented by persons travelling or on the job who cannot go home for meals; and the voluntary, those who eat out by choice. Growth in the involuntary market can easily be seen by the increase of industrial feeding, school lunches, airborne meals, and similar changes in our economy. Little is known, however, about the voluntary market. With a look to the future, it would seem imperative to raise the per capita frequency of voluntary eating out and to maintain and increase satisfaction of those who involuntarily eat out. These objectives can be accomplished through product research and service research. In product research, others are carrying on work that will affect institutions. Service research needs are more crucial and demanding, and it is in this area that a singular opportunity for growth and accomplishment exists. Yet it is the most difficult type of research and development program, as it is concerned with people rather than products.

Kitchen Ventilation Developments. A kitchen ventilation system is expected to reduce fire hazards and cleaning problems, increasing patron enjoyment and personnel comfort by removing heat, steam, odors, and fumes from cooking equipment and food in the process of cooking. Canvassing a number of manufacturers reveals a number of research and development achievements in the field of ventilation. One company has incorporated a built-in, double-duct system to introduce fresh air into the ventilator on its line of cooking units; this balanced system is said to halve the normal air loss in the company's previous system. Another manufacturer is using centrifugal force to extract grease from cooking vapors. Improvements in design and appearance are also noted. The idea of unitized or area-type ventilation gives the kitchen planner opportunity for better use of floor and wall space. Hood and ventilation experts are providing their equipment with protection against fires and other accidents by use of a

See for yourself...

PURE-PAK CARTONS ARE STERILIZED INSIDE AND OUT JUST SECONDS BEFORE FILLING



The only milk package with a built-in pouring spout...pours like a pitcher.

Visit your nearby Pure-Pak-equipped dairy. Watch the amazing Pure-Pak machine automatically form the carton from the paper blank, sterilize it both inside and out, and moments later fill it with milk and seal it. Can there be any doubt that Pure-Pak is the most sanitary of all containers? Consider, too, another obvious sanitary advantage: the carton is used only once, only for dairy products, only by you!

Lightweight Pure-Pak cartons are easier to handle, require less refrigerator space. Bottle washing and storage problems are eliminated. So, too, is breakage. And the handy half-pint size keeps cafeteria lines moving, with no tie-ups.

If your cafeteria, restaurant, school or hospital has not yet joined the legions of Pure-Pak users, do so now. Ask your dairy supplier to start Pure-Pak delivery.

Pure-Pak
YOUR PERSONAL MILK CONTAINER

28 million times a day, in 26 countries, someone breaks the seal on a fresh Pure-Pak carton

slotted steam smothering line. These and other features are described.

Instant Coffee? Instant coffee acceptability seems to depend on the type of patron catered to, type of institutional set-up, quality level of operation, and quality of beverage before instant coffee was tried. Cost is another factor. Although the original cost of instant coffee is greater, better control in beverage strength, less waste, and smaller outlay for equipment and accessories can make it cheaper. It is recommended that each operator decide the coffee question for himself. Facts to help him make a decision are given in the article. First, the case for regular coffee is presented. Brewed coffee owes its distinctive flavor and aroma to acids and oils; reconstituted instant coffee does not have the same flavor and aroma because the acid and oil composition has been changed. Nevertheless, instant coffee is a very palatable item, and customer acceptability is increasing all the time. Other benefits, such as less storage space, ease of preparation by relatively unskilled workers, and the ability to maintain a standard coffee quality should be considered.

Food Equipment Research. The question posed here is: "Shall the food service equipment industry continue to make the equipment that has sold so well in the past, or shall it perform the research necessary to modernize equipment and bring it up on a par with other industrial development?" If a concerted research effort is to be carried on, teamwork is required, involving the cook, the scientific feeding specialist, and the engineer. The author, in suggesting the course that equipment research should take, points out the weaknesses and faults of present equipment (ovens, griddles, deep-fat fryers, and so on) and the more glaring examples of improper consideration of human requirements (sinks too deep, ovens too high or low, work tables too low, and so on). Means of reducing pieces of equipment and increasing automation are among the other suggestions made.

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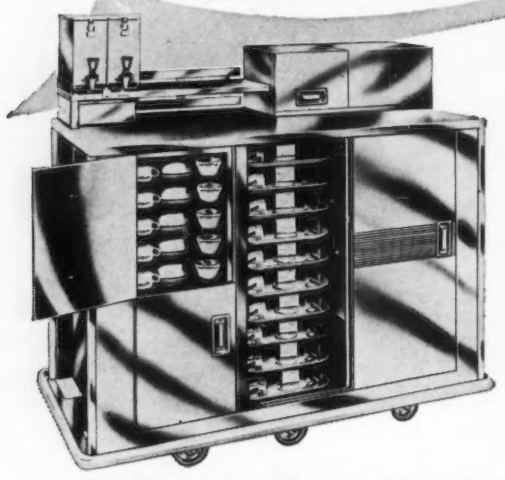
THE ALL NEW ELECTRA



with Match-a-Tray and more plus features than all others

- Heavy Duty ¼ H.P. compressor
- Ice cream freezer
- Double oven doors
- Increased work space
- Six wheels
- Rugged corner bumpers
- Ample vertical clearance
- Two "Hot or cold" beverage containers
- Toaster outlet
- Utility drawer

HOW MATCH-A-TRAY WORKS:

1 Patient-tray — cold items.

2 Match-A-Tray — hot items.

3 Trays placed in corresponding hot and cold compartments.

4 At serving point Match-A-Tray hot items transferred to patient-tray.

5 Tray delivered to patient — hot foods hot — cold foods cold.

Meals-on-Wheels System

5005 E. 59th St., Kansas City 30, Mo.

Please send me your 1960 Electra catalog.

Name _____ Title _____

Institution _____

No. of floors _____ No. of beds _____

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THE MODERN HOSPITAL

Vol. 95, July, 1960

*Write the menu for the readers. J. H. Bing. p. 106.

*Take food cost comparisons with a pinch of salt. J. Hartman.—p. 112.

The Hospital Menu. It seems that little emphasis is placed on how to write hospital menus. Some simple rules are given to make the menu a powerful medium of communication: (a) correct terminology (no misrepresentation, elimination of imaginative terms); (b) judicious use of foreign terms and phrases (use a suitable English expression if possible); (c) no unnecessary adjectives; (d) correct use of the singular and plural (for instance, it is unfair to write "broiled lamb chops" if one chop constitutes a serving); (e) freedom from ambiguity (generalizations, such as "soup of the day," "ice cream," "fresh fruit," and "cooked cereal," indicate that the menu is not fully planned); (f) consistency of format; and (g) accuracy and completeness. Writing the menu so that the patient can understand it protects him from unnecessary disappointment and protects management from needless attacks on its motives and reputation.

Cost Comparisons. There is often the temptation to measure performance of a food service department by comparing cost data with other hospitals. First, however, one must be aware of the factors affecting comparability. These include: (a) the type of food distribution system in use; (b) administrative policy concerning personnel food service; (c) catering (not a fair or justifiable charge against patient food service); (d) the layout and equipment in the food service department; (e) personnel policies; and (f) scope of service to patients.

RESTAURANT MANAGEMENT

Vol. 87, July, 1960

*A dozen ways to slice it. A. Easton.—p. 54.

*Keep it cool! A. Eiss and G. Eiss.—p. 61.

Sandwich Combinations. Americans are eating 196 sandwiches per capita a year. What can be done to put imagination in this common food item? Here are twelve interesting types, including the French toast sandwich,

the soufflé type, oversized, club, broiled, pizzas, and the "pan-san." A variety of fillings and combinations for each type are suggested. Recipes are included for a broiled tuna and tomato sandwich, a ham loaf-and-pineapple on skewer in frankfurter roll, and a pineapple and peanut butter sandwich.

Keeping Cool. So many things can be done to make patrons more comfortable on a hot day. Iced drinks—even water—in a relaxed atmosphere, lessens annoyance of having to wait for a table. Even if tables are already available, the iced drink is still welcome. Frosted glasses and mint leaves are pleasing additions. Air conditioning (not too cool) and proper humidity, coupled with soft, slow music and restful colors are also important. And what about air conditioning in the kitchen to increase the efficiency and morale of employees? Other hints involve attractive service of both cold and hot foods and a greater quantity of chilled or frozen desserts.

THE SANITARIAN

Vol. 22, May-June, 1960

*The food industry and its relation to the food-borne disease problem. J. R. Richardson.—p. 336.

The Food Industry and Food-Borne Disease. The food industry is considered here as any activity which has to do with the growing, processing, preparing, and serving of food. This includes meals prepared by the homemaker. It is pointed out that few cases of food diseases can be attributed to public eating places; they more frequently occur at picnics and other social events where food is prepared and served by inexperienced handlers using improvised equipment and techniques. This does not mean, however, that public eating establishments can treat the matter lightly. The danger of food-borne disease is always present. The need for education in sanitation is stressed; sources of information are suggested; the role of the sanitarian in establishing rapport with the restaurateur (developing mutual understanding of each other's problems) is emphasized.

VOLUME FEEDING MANAGEMENT

Vol. 15, July, 1960

*Twenty-three basic knives.—p. 24.

*Bread . . . still the basic food. E. Blair.—p. 26.

*How to control labor costs. J. W. Stokes.—p. 35.

*Some aspects of dishroom layout. O. Webber.—p. 53.

*Product evaluation report: serving trays.—p. 59.

*How good is your pot washing?—p. 67.

Basic Knives. Twenty-three basic knives for kitchen use are pictured and described. All fall into one of five categories: fish and seafood knives, cooks' knives, butchers' knives, fruit and vegetable knives, and slicers.

Bread Tricks. Bread, a perfect companion food, is one of the least expensive items to merchandise. French bread and party rye spark interest when spread with savories such as herb-scented butter, cinnamon and orange rind, poppy seeds or garlic, and Parmesan cheese. A combination of Worcestershire and cheese achieves new status for toasted hamburger or frankfurter buns. Very special are toasted English muffins with a blend of ginger and lemonade concentrate.

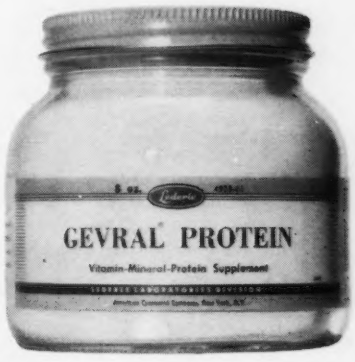
Controlling Labor Costs. Today, labor costs are, in many cases, the largest single item of food service operation. Before they can be reduced, it is necessary to determine them accurately and devise more efficient procedures. Tools to carry out such a task are the payroll records (daily time card and weekly time sheet), job analyses, labor cost comparisons (between units of a large operation, or between the present and previous period in a single unit), and man-hour comparisons. Charts and tables are included to illustrate how each of these procedures can be used in labor cost analysis. Another section of the article illustrates how improved equipment, relocation of equipment, and employee training can reduce labor costs.

Dishroom Layout. In the planning of many present food service operations, there is a definite leaning towards the use of gigantic dishwashers which are really designed for installation where the washing load is very heavy and constant. Such conditions are not common; most operations lead into a peak load and slacken off over a period of several hours. Often, a series of smaller machines is more economical. To illustrate, three sketches are included: one is for two sets of dishwashers servicing a large establishment (1050 seats); another is the type to serve in any moderate capacity dining facility, motel, or road-side restaurant; the third shows the dishwashing set up for coffee shops.

Serving Trays. This evaluation of serving trays indicates the wide variety now available — in materials, shapes, sizes, and colors. Improvements have been in refining and improving, rather than in new products. They should be selected to enhance the decorating theme. Problems of smell, toxicity, and warping all relate to improper cleaning and mishandling. Trays can provide service for ten years or more with proper handling. No single type of tray is best for everything; within types, it is economical to buy the best quality consistent with the operation. Products of six manufacturers are described and illustrated. "To get the service some feeders want would require a cast iron product for strength, and a piece of Steuben Glass for beauty, at the price of pressed paper —an impossibility."

Pot Washing. The requirements of an adequate pot washing set up are described and illustrated. Procedure and equipment are not the only factors. Employee training is vital also.

GEVRAL
Protein



Each 30 Gm. (2 heaping tablespoons) contains:	
Vitamin A (acetate)	2,500 U.S.P. Units
Vitamin D	250 U.S.P. Units
Thiamine Mononitrate (B_1)	2.5 mg.
Riboflavin (B_2)	2.5 mg.
Niacinamide	7.5 mg.
Pyridoxine HCl (B_6)	0.25 mg.
Calcium Pantothenate	2.5 mg.
Vitamin B_{12} with AUTRINIC® Intrinsic Factor Concentrate	1/15 U.S.P. Oral Unit
Lysine	1.5 Gm.
Choline Dihydrogen Citrate	50 mg.
Inositol	25 mg.
Ascorbic Acid (C)	25 mg.
Rutin	12.5 mg.
Vitamin E (tocopheryl acetates)	5 I.U.
Calcium ($CaHPO_4$ & Calcium Caseinate)	414 mg.
Phosphorus ($CaHPO_4$)	60.9 mg.
Calcium Caseinate	21 Gm.
Ferrous Fumarate (Elemental Iron, 5 mg.)	15.2 mg.
Fluorine (CaF_2)	0.05 mg.
Copper (CuO)	0.5 mg.
Iodine (KI)	0.1 mg.
Potassium (from K_2SO_4 and Calcium Caseinate)	15 mg.
Manganese (MnO_2)	0.5 mg.
Zinc (ZnO)	0.25 mg.
Magnesium (MgO)	0.5 mg.
Boron ($Na_2B_4O_7.10H_2O$)	0.05 mg.
Carbohydrate (from malt extract and sucrose)	7 Gm.
Calories	105.3
Total Protein (Nx6.38)*	60%
Sodium	.075%
Fat not more than	2%

SUPPLIED: ½ lb. jar and 5 lb. can
*AS CALCIUM CASEINATE OF MILK ORIGIN

A well-balanced moderate low-fat breakfast for teen-age girls

Teen-age girls comprise the most poorly fed group in our population today according to nutrition researchers. During this critical growth period, well over half of them skip or skimp on breakfast, the most important meal of the day. As a service to those advising teen-age girls and their parents, this *well-balanced, moderate low-fat basic cereal and milk breakfast* shown in the chart below merits consideration. Its moderate low-fat content of 10.9 gm. provides 20 per cent of the total calories. This is in keeping with the modern trend toward a moderate reduction of dietary fat for all ages. For "Girls, 13 to 15 years," it is *well-balanced* and provides about one-fourth of the recommended daily dietary allowances! The Iowa Breakfast Studies demonstrated that *a basic cereal and milk breakfast was nutritionally efficient* for the young and old alike.

Recommended Daily Dietary Allowances and the Nutritional Contribution of a Basic Cereal and Milk Moderate Low-Fat Breakfast*

Menu: Orange Juice—4 oz.;
Cereal, dry weight—1 oz.;
Whole Milk—4 oz.; Sugar—1 teaspoon;
Toast (white, enriched)—2 slices;
Butter—5 gm. (about 1 teaspoon);
Nonfat Milk—8 oz.

Nutrients	Calories	Protein	Calcium	Iron	Vitamin A	Thiamine	Riboflavin	Niacin equiv.	Ascorbic Acid
Totals supplied by Basic Breakfast	503	20.9 gm.	0.532 gm.	2.7 mg.	588 I.U.	0.46 mg.	0.80 mg.	7.36 mg.	65.5 mg.
Recommended Dietary Allowances—Girls, 13 to 15 Years (49 kg.—108 lb.)	2600	80 gm.	1.3 gm.	15 mg.	5000 I.U.	1.3 mg.	2.0 mg.	17 mg.	80 mg.
Percentage Contributed by Basic Breakfast	19.3%	26.1%	40.9%	18.0%	11.8%	35.4%	40.0%	43.3%	81.9%

Cereal Institute, Inc.: Breakfast Source Book. Chicago: Cereal Institute, Inc., 1959.

Food & Nutrition Bd.: Recommended Dietary Allowances, Revised 1958. Natl. Acad. Sci.—Natl. Research Council Publication 589, 1958.

Watt, B. K., and Merrill, A. L.: Composition of Foods—Raw, Processed, Prepared. U.S.D.A. Agriculture Handbook No. 8, 1950.

**The allowance levels are intended to cover individual variations among most normal persons as they live in the United States under usual environmental stresses. Calorie allowances apply to individuals usually engaged in moderate physical activity. For office workers or others in sedentary occupations they are excessive. Adjustments must be made for variations in body size, age, physical activity, and environmental temperature.*

CEREAL INSTITUTE, INC.
135 South La Salle Street, Chicago 3

A research and educational endeavor devoted to the betterment of national nutrition

Tentative Program, 43rd Annual Meeting

THE AMERICAN DIETETIC ASSOCIATION
Cleveland, Ohio—October 18-21, 1960

All meetings and activities, unless otherwise specified, will be held at the Cleveland Public Auditorium, October 18-20.

Saturday, October 15

9:00 a.m.–12 noon—CONFERENCE OF DIRECTORS AND STAFFS OF APPROVED DIETETIC INTERNSHIPS, Sheraton-Cleveland Hotel (limited to internship programs)

1:30–4:30 p.m.—CONFERENCE OF DIRECTORS AND STAFFS OF APPROVED DIETETIC INTERNSHIPS, Sheraton-Cleveland Hotel (limited to internship programs)

Sunday, October 16

1:30–5:00 p.m.—CONFERENCE OF FACULTIES OF COLLEGE AND UNIVERSITY HOME ECONOMICS DEPARTMENTS AND APPROVED DIETETIC INTERNSHIPS, Sheraton-Cleveland Hotel

2:00–8:00 p.m.—REGISTRATION, Sheraton-Cleveland Hotel

7:00–8:30 p.m.—ORIENTATION OF DELEGATES TO THE HOUSE OF DELEGATES, Sheraton-Cleveland Hotel

Monday, October 17

7:30–8:20 a.m.—REGISTRATION OF DELEGATES TO THE HOUSE OF DELEGATES, Sheraton-Cleveland Hotel

8:30 a.m.–12:15 p.m.—MEETING OF THE HOUSE OF DELEGATES, Sheraton-Cleveland Hotel (Members of the Association are encouraged to audit this meeting.)

8:30 a.m.–8:00 p.m.—REGISTRATION, Sheraton-Cleveland Hotel

12:30–1:30 p.m.—LUNCHEON, Sheraton-Cleveland Hotel (members of the House of Delegates and alternate delegates only)

1:45–5:00 p.m.—MEETING OF THE HOUSE OF DELEGATES, Sheraton-Cleveland Hotel (Members of the Association are encouraged to audit this meeting.)

7:45 p.m.–10:00 p.m.—NEW SECTION OBJECTIVES, Sheraton-Cleveland Hotel

Creativity and You—Warren Guthrie Ph.D., Chairman, Department of Speech, Western Reserve University

Introduction: Doris Johnson, Ph.D.

Panel:

Gertrude E. Miller, Chairman, A.D.A. Program of Work Committee, *Coordinator*

Lorraine G. Weng, Chairman, A.D.A. Committee to Revise Objectives for Section Activities

J. June Stein, Chairman, A.D.A. Community Nutrition Section

Dorothy M. Kinnear, A.D.A. Diet Therapy Section Chairman

F. Eugenia Whitehead, Sc.D., A.D.A. Education Section Chairman

Esther G. Woodruff, A.D.A. Food Administration Section Chairman

Workshops—Meet Your Fellow A.D.A. Members

Tuesday, October 18

7:30–8:00 a.m.—REGISTRATION OF DELEGATES TO THE HOUSE OF DELEGATES, Sheraton-Cleveland Hotel

8:00–9:45 a.m.—MEETING OF THE HOUSE OF DELEGATES, Sheraton-Cleveland Hotel

8:30 a.m.–4:00 p.m.—REGISTRATION, Cleveland Public Auditorium

10:30–11:30 a.m.—OPENING SESSION, Cleveland Public Auditorium

Invocation

Presentation of the Colors

Introduction of Executive Board

Professional Education for a Complex World—John Schoff Millis, Ph.D., President, Western Reserve University, Cleveland

11:00 a.m.–9:00 p.m.—EXHIBITS OPEN

11:40 a.m.–12:40 p.m.—REPORT FROM MEMBERS FROM ABROAD

11:45 a.m.–12:30 p.m.—YOU AND MANAGEMENT DEVELOPMENT—Brantley Watson, Ph.D., Vice President, Human Relations, McCormick & Company, Inc., Baltimore

11:45 a.m.–1:15 p.m.—SHARE AND COMPARE

A.D.A. career film, "View from the Mountain"—Dagmar T. Walch, Wauwatosa, Wisconsin

Parliamentary Procedure—Nellie N. Cooley, Registered Parliamentarian, Cleveland

Cost Controls—Paul S. Damazo, Director, Dietary Services, Glendale Sanitarium and Hospital, Glendale, California; Instructor, University of California at Los Angeles, Los Angeles; and Assistant Professor, College of Medical Evangelists, Los Angeles

12:45–1:30 p.m.—COMBATING FOOD MISINFORMATION

Dietitians and Nutritionists Report—F. Inistore Godfrey, Nutritionist, Bureau of Health Education, Cleveland Division of Health

Better Business Viewpoint—Marshall A. Mott, President, The Cleveland Better Business Bureau, Inc.

Medical Viewpoint—Charles Hudson, M.D., Past-President, Academy of Medicine, Cleveland

1:45–3:00 p.m.—ARTERIOSCLEROSIS: DIETARY ASPECTS OF TODAY

The Many Faces of Arteriosclerosis—Irvine H. Page, M.D., Research Division, Cleveland Clinic

Living with the Vegetable Oil Food Pattern—Alla P. Meredith, Nutritionist, Research Division, Cleveland Clinic

Dietary Approach for the Control of Serum Cholesterol—Herbert Pollack, M.D., Ph.D., Chairman, Nutrition Committee, American Heart Association, New York, New York

Preview of Fat-Controlled Diets—Joint Project, American Heart Association and The American Dietetic Association—Elizabeth K. Caso, Nutritionist, Health Department, Cambridge, Massachusetts, and Instructor in Nutrition, Department of Public Health Practice, Harvard University School of Public Health, Boston

2:00–3:10 p.m.—MANAGERIAL RESPONSIBILITIES

Management Training—Robert J. House, Ph.D., Instructor, College of Commerce and Administration, The Ohio State University, Columbus

3:15–4:30 p.m.—BUSINESS MEETING OF MEMBERS OF THE AMERICAN DIETETIC ASSOCIATION—Association Highlights of 1959-1960

6:30–8:00 p.m.—WELCOMING BUFFET SUPPER FOR MEMBERS AND EXHIBITORS

6:30–9:00 p.m.—VISIT EXHIBITS

Wednesday, October 19

7:15–8:15 a.m.—BREAKFAST FOR PRESENT AND INCOMING EXECUTIVE BOARDS OF STATE DIETETIC ASSOCIATIONS, Sheraton-Cleveland Hotel

8:15–9:30 a.m.—MEETING FOR PRESENT AND INCOMING EXECUTIVE BOARDS OF STATE DIETETIC ASSOCIATIONS, Sheraton-Cleveland Hotel

8:30 a.m.–4:00 p.m.—REGISTRATION

8:00–9:30 a.m.—SHARE AND COMPARE, Cleveland Public

Auditorium and Sheraton-Cleveland Hotel

Meeting for Dietary Consultants to Small Hospitals and Similar Facilities—Minerva Harbage, Dietary Consultant to Institutions, Ohio Department of Health, Columbus

Teaching Students in Hospital Administration—Grace L. Stumpf, Director of Dietetics, University of Michigan Hospital, Ann Arbor

Dietetic Problems in Research Units—Mary Lou Piche, Surgical-Metabolic Dietitian, Peter Bent Brigham Hospital, Boston

9:00 a.m.–5:30 p.m.—VISIT EXHIBITS

9:45–11:15 a.m.—HOW DO OUR DEPARTMENTS OF DIETETICS MEASURE UP?

What the Joint Commission Expects of Dietitians—Kenneth B. Babcock, M.D., Director, Joint Commission on Accreditation of Hospitals, Chicago

Department of Dietetics Relationships with Administration, Department Heads, and Medical Staff—Albert W. Snoke, M.D., Director, Grace-New Haven Community Hospital, New Haven, Connecticut

10:15–11:30 a.m.—DIET THERAPY

Adult Calcium Requirements and Nutritional Aspects of Old Age Osteoporosis—Ole J. Malm, M.D., Ph.D., Chief, Metabolism Section, Department of Surgical Metabolism and Physiology, and Deputy Director, Department of Germfree Research, Walter Reed Army Institute of Research, Walter Reed Army Medical Center, Washington, D.C.

Individuality, Variability, Duration, Emotions, and Other Pertinent Factors in the Interpretation of Metabolic Data—Helen A. Hunscher, Ph.D., Chairman, Department of Home Economics, Western Reserve University, Cleveland

11:30 a.m.–12:45 p.m.—PRINCIPLES OF EFFECTIVE COMMUNICATION—Edgar Dale, Ph.D., Professor and Research Associate, Bureau of Educational Research and Service, The Ohio State University, Columbus

12 noon–1:20 p.m.—OUR SENIOR CITIZENS

Today's Challenge–An Aging Population—Claire F. Ryder, M.D., Medical Director, Chief, Health of the Aged, Chronic Disease Program, Division of Special Health Services, Public Health Service, Washington, D.C.

1:30–2:45 p.m.—THE COMMUNITY'S RESPONSIBILITY FOR FEEDING THE AGED

Organized Nutrition Home Care Programs—Geraldine M. Piper, Nutrition Consultant, Chronic Disease Program, Division of Special Health Services, Public Health Service, Washington, D.C.

Trends in Nursing Home and Institutional Care—Mildred C. Barry, Director, Department of Work with Older Persons and Chronically Ill, The Welfare Federation, Cleveland

Observations of a Public Health Nurse Consultant in a Nursing Home Program—Emma Ludwig, R.N., Consultant, Chronic Illness and Geriatrics, Cleveland Division of Health

The Dietitian's Responsibility in Caring for the Aged—Margaret Walsh, Consultant Dietitian, The Welfare Federation, Cleveland

1:30–2:45 p.m.—PRESENT CONCEPTS IN NURSING EDUCATION

Teaching Nutrition and Diet Therapy in Schools of Nursing—Mary R. Edmunds, Instructor in Nursing, Union Memorial Hospital School of Nursing, Baltimore

Teaching Methods in the Classroom—Frances T. Ilacqua, Nutrition Instructor, Catherine Laboure School of Nursing, Boston

Methods of Teaching in Clinical Experience—B. Louise Irwin, Director, Department of Dietetics, Indiana University Medical Center, Indianapolis

NLN Testing Programs—Mary Shields, Director of Test Construction Unit, National League for Nursing, Inc., New York, New York

2:20–3:35 p.m.—FOOD TECHNOLOGY ADVANCES

New Horizons for Food—Jane C. Ebbs, Special Feeding and Nutrition Advisor, Office of the Quartermaster General, Department of the Army, Washington, D.C.

A Study of the Microbiology of Frozen Precooked Foods—L. R. Shelton, Jr., Division of Microbiology, Bureau of Biological and Physical Science, Food and Drug Administration, Washington, D.C.

2:30–3:45 p.m.—EFFECTS OF CALORIC RESTRICTION

Changes in Daily Energy Expenditure with Weight Reduction in Obese Women—Elsworth R. Buskirk, Ph.D., Physiologist in Charge of the Metabolic Chamber Group, Metabolic Diseases Branch, National Institute of Arthritis and Metabolic Diseases, National Institutes of Health, Bethesda, Maryland

Nutrition and Performance Capacity: Effects on Human Organism of Caloric and Water Restriction—Josef Brozek, Ph.D., Professor and Chairman, Department of Psychology, Lehigh University, Bethlehem, Pennsylvania

4:00–4:50 p.m.—CALORIC EXPENDITURE AND ENERGY SAVING

Factors Affecting Energy Expenditure in Homemaking Tasks—Elaine K. Weaver, Ph.D., Chairman, Housing, Equipment, and Furnishings Division, College of Agriculture and Home Economics and Ohio Agricultural Experiment Station, The Ohio State University, Columbus

Energy Research—A Basic Approach to Kitchen Design—Mildred S. Howard, Housing Specialist, Clothing and Housing Research Division, Agricultural Research Service, U.S. Department of Agriculture, Washington, D.C.

3:45–5:00 p.m.—MENTAL HEALTH PROGRAMS TODAY

Our Role in Activity Therapy—John Hedges, Coordinator of Activity Therapy, State of Indiana, Richmond, *and* Curt Dollins, Recreational Director, State of Indiana, Richmond

3:45–5:00 p.m.—TRAINING THE FOOD SERVICE SUPERVISOR

Training Programs for the Food Service Supervisor—Myrtle B. Van Horne, Coordinator, Food and Nutrition and Continuing Education Service, and Assistant Professor, College of Home Economics, Michigan State University, East Lansing

The American Dietetic Association Pilot Project—Sallie J. Mooring, Project Director, Food Service Supervisors' Program, The American Dietetic Association, Chicago

How to Liberate Your Professional Staff—Elizabeth M. McCune, Assistant Director, Department of Dietetics and Nutrition, University of Kansas Medical Center, Kansas City

5:00–6:00 p.m.—THE A.D.A. EXECUTIVE BOARD AT HOME TO DIETETIC INTERNS, Sheraton-Cleveland Hotel

6:00–8:00 p.m.—ALUMNAE DINNERS–COLLEGES, UNIVERSITIES, AND MILITARY SERVICES, Sheraton-Cleveland Hotel

8:30–9:45 p.m.—NUTRITION IN PROGRESS, Sheraton-Cleveland Hotel

Our Food Protection Program—George P. Larrick, Commissioner of Food and Drugs, Food and Drug Administration, Washington, D.C.

Latest Advances in Nutrition—Charles Glen King, Ph.D., D.Sc., Executive Director, The Nutrition Foundation, Inc., New York, New York

9:45–10:45 p.m.—THE A.D.A. EXECUTIVE BOARD WELCOMES OUR VISITORS FROM OTHER LANDS, Sheraton-Cleveland Hotel

Thursday, October 20

7:15–8:15 a.m.—ALUMNAE BREAKFASTS–DIETETIC INTERNSHIPS, Sheraton-Cleveland Hotel

8:00–9:30 a.m.—DIETARY METHODOLOGY

Experiences in Designing and Processing a Dietary Schedule for Epidemiologic Studies—Patricia A. Stefanik, Instructor in Nutrition, Department of Nutrition, Harvard University School of Public Health, Boston

Experiences with an Electronic Computor for Processing Dietary Data

Panel:

Marjorie Grant Whiting, D.Sc., Research Nutritionist, Geographic Disease Studies, National Heart Institute, National Institutes of Health, Bethesda, Maryland, *Coordinator*

Mary Helen Goodloe, Research Nutritionist, Heart Disease Control Program, Georgia Department of Public Health, Atlanta

Yolanda Hall, Research Assistant, Heart Disease Control Program, Chicago Board of Health

Olive B. Hayes, Nutrition Consultant, Heart Disease Control Program, Public Health Service, Washington, D.C.

Anne MacMillan, Research Nutritionist, University of Illinois Health Survey Project, Chicago

Georgiana Pearson, Dietitian, Heart Disease Epidemiology Study, Framingham (Mass.) Union Hospital

8:30 a.m.–4:00 p.m.—REGISTRATION

8:30–10:00 a.m.—MENTAL HEALTH, Sheraton-Cleveland Hotel

A Mental Hospital Administrator Speaks—William Brenizer, Administrator, Richmond (Ind.) State Hospital

Discussants:

Alta Hummel Saxer, Director, Dietary Department, Richmond (Ind.) State Hospital, *and* Arlene Wilson, Consulting Dietitian, Indiana Department of Health, Indianapolis

8:30–10:00 a.m.—SHARE AND COMPARE, Cleveland Public Auditorium and Sheraton-Cleveland Hotel

Food Service Supervisor Training Programs—Mary R. DeMarco, Director of Dietetics, Cleveland Metropolitan General Hospital, Cleveland, *Leader*; Henriette D. Gebert, Director of Dietetics, Passavant Hospital, Chicago; Alma McDougall, Associate Professor of Hotel and Institution Administration, College of Home Economics, Pennsylvania State University, University Park; Sallie J. Mooring, Project Director, Food Service Supervisors' Program, The American Dietetic Association, Chicago; and Myrtle B. Van Horne, Coordinator, Food and Nutrition and Continuing Education Service, and Assistant Professor, College of Home Economics, Michigan State University, East Lansing

Developing and Writing Diet Manuals—Elizabeth K. Caso, Nutritionist, Health Department, Cambridge, Massachusetts, and Instructor in Nutrition, Department of Public Health Practice, Harvard University School of Public Health, Boston

Education for Student Nurses—Corinne H. Robinson, Professor and Head, Food and Nutrition, College of Home Economics, Drexel Institute of Technology, Philadelphia

9:00 a.m.–5:30 p.m.—VISIT EXHIBITS

9:40–11:10 a.m.—RESEARCH IN ATHEROSCLEROSIS AND OBESITY

Dietary Aspects of a Long-Term Coronary Study—Anne MacMillan, Research Nutritionist, University of Illinois Health Survey Project, Chicago

Clinical and Laboratory Aspects of a Long-Term Study in Coronary Heart Disease—Oglesby Paul, M.D., Clinical Associate Professor of Medicine, University of Illinois College of Medicine, Chicago

Meal Eating, Nibbling, and Body Metabolism—Clarence Cohn, M.D., Director, Department of Biochemistry, Medical Research Institute, Michael Reese Hospital and Medical Center, Chicago

Body Composition Studies in Young Women—Charlotte M. Young, Ph.D., Professor of Medical Nutrition, Graduate School of Nutrition, Cornell University, Ithaca, New York

9:30–10:45 a.m.—SCORING YOUR WORK EFFICIENCY

Standards of Measuring Productivity—Lt. Col. Katharine E. Manchester, Chief, Dietitian Section, Army Medical Specialist Corps, Department of the Army, Washington, D.C.

Giving Responsibility to Others—Irvin L. Heckmann, Jr., Ph.D., Associate Professor of Management, Department of Management, University of Illinois, Urbana

11 a.m.–12:15 p.m.—Layouts in Departments of Dietetics—Margaret E. Terrell, Professor, School of Home Economics, University of Washington, Seattle *and* Lendal H. Kotschevar, Ph.D., School of Hotel, Restaurant, and Institutional Management, Michigan State University, East Lansing

11:15 a.m.–12:45 p.m.—1960 WHITE HOUSE CONFERENCE ON CHILDREN AND YOUTH—A REPORT

Icie Macy Hoobler, Ph.D., The Merrill-Palmer Institute, Detroit, *Coordinator*

A Look at Youth Today—Helen R. LeBaron, Ph.D., Dean, College of Home Economics, Iowa State University, Ames

Panel:

Ercel S. Eppright, Ph.D., Head, Department of Food and Nutrition, College of Home Economics, Iowa State University, Ames, *Moderator*

Helen A. Hunscher, Ph.D., Chairman, Department of Home Economics, Western Reserve University, Cleveland

Alice M. Smith, Chief, Nutrition Section, Division of Local Health Administration, Michigan Department of Health, Lansing

Gladys Witt Strain, Department of Home Economics, Western Reserve University, Cleveland

F. Eugenia Whitehead, Sc.D., Professor and Chairman, Department of Home Economics, State University of Iowa, Iowa City

1:00–2:15 p.m.—IMPROVING LABOR RELATIONS

Current Developments in Labor Relations—Dallas M. Young, Ph.D., Associate Professor of Economics, Western Reserve University, Cleveland

Strikes Can Be Handled—Rose Rutchik, Director of Dietary Department, Beth Israel Hospital, New York, New York

1:40–3:00 p.m.—CHANGING FOOD HABITS

Social Factors in Food Acceptance—Peter H. Rossi, Ph.D., Director, National Opinion Research Center, University of Chicago, Chicago

How Characteristics of Foods and of People Relate to Food Preferences—Francis J. Pilgrim, Ph.D., Chief, Research and Evaluation Section, Food Acceptance Branch, Quartermaster Research and Engineering Command, Quartermaster Food and Container Institute for the Armed Forces, Chicago

On Attitudes and the Use of Food—Charlotte G. Babcock, M.D., Western Psychiatric Institute and Clinic, School of Medicine, University of Pittsburgh

2:30–3:45 p.m.—CENTRALIZED VS. DECENTRALIZED SERVICE: AN EXERCISE IN APPLIED RESEARCH—John D. Thompson, Research Associate, Public Health and Hospital Administration, Department of

Public Health, Yale University School of Medicine, New Haven, Connecticut
Discussant: Irene West, Director, Dietary Department, The Stamford (Conn.) Hospital

2:30–4:00 p.m.—THERAPEUTIC RESEARCH

Intestinal Absorption and Malabsorption—James A. Clifton, M.D., Associate Professor of Medicine and Chief, Division of Gastroenterology, State University of Iowa, Iowa City

Dietary Modification of Hereditary Disease—W. Eugene Knox, M.D., Assistant Professor of Biological Chemistry, Harvard University School of Medicine, and the New England Deaconess Hospital, Boston

3:30–5:00 p.m.—SCHOOL FOOD SERVICE TRAINING PROGRAMS

Edna M. Gilbert, Youngstown, Ohio, *Coordinator*
In-Service Training in Food Production—Hazel Fullriede, Supervisor of Junior and Senior High Schools, Division of Food Service, Cincinnati Public Schools
The Need for Planning Workshops for School Lunch Personnel—Wade D. Bash, Chief, School Lunch Program, Ohio Department of Education, Columbus
Discussion

3:30–5:00 p.m.—OUR NUCLEAR AGE

Biologic Warfare—LeRoy D. Fothergill, M.D., Scientific Advisor to the Commanding Officer, U.S. Army Biological Laboratories, Ft. Detrick, Maryland

Radiostrontium Metabolism in Man—Herta Spencer, M.D., Associate Attending Physician, Full-time in Charge of Research, Division of Neoplastic Diseases, Montefiore Hospital, New York, New York

Health Mobilization and the Dietitian—John W. Walsh, M.D., VA Liaison Office to the Division of Health Mobilization, Public Health Service, Washington, D. C.

4:00–5:00 p.m.—PUBLIC RELATIONS THROUGH FOOD

Improving Quality Food—Grace L. Stumpf, Director of Dietetics, University of Michigan Hospital, Ann Arbor

Merchandising Your Food—Marjorie S. Arkwright, Manager of Food Service, Illini Union, University of Illinois, Urbana

7:30–10:00 p.m.—ANNUAL BANQUET, Sheraton-Cleveland Hotel

Invocation

Presentation of honorary membership

Presentation of Mary Swartz Rose Fellowship and Mead Johnson, Lydia J. Roberts Essay, and Marjorie Hulsizer Copher Awards

Premier—"*Take A Good Look*"—a documentary slidefilm on careers in dietetics

Introduction of incoming officers

Friday, October 21

All Friday meetings will be held in the Sheraton-Cleveland Hotel

7:15–8:15 a.m.—ALUMNAE BREAKFASTS–DIETETIC INTERNSHIPS

8:30–10:00 a.m.—SHARE AND COMPARE

Disaster Feeding and Civil Defense Panel:

Vera Tharp, Chairman, A.D.A. Disaster Feeding and Civil Defense Planning Committee, Illinois Department of Public Welfare, Springfield, *Moderator and Coordinator*

Role of The American Red Cross in Emergency Feeding—Janet M. Bryan, Director, Food and Nutrition Service, The American National Red Cross, Cincinnati

Importance of Hospital Dietary Disaster Preparedness—Maj. Ardeth J. Wick, Chief, Food Service Division, U.S. Army Hospital, Ft. Campbell, Kentucky

Dorothy Bovee, Food and Nutrition Consultant, American National Red Cross, National Headquarters, Washington, D.C., *Consultant*

For Teachers of Quantity Food Preparation—Virginia Harger, Associate Professor in Institution Management, School of Home Economics, and Director, Administrative Internship, The Ohio State University, Columbus

"*Take A Good Look*"—a documentary slidefilm on careers in dietetics—and A.D.A. career film, "*View from the Mountain*"—Frances W. Margut, Chief, Dietetic Service, VA Hospital, Lebanon, Pennsylvania

9:00–10:00 a.m.—THE SHARED DIETITIAN—Irene Dowd, Dietitian, Lake View Community Hospital, Paw Paw, and South Haven Hospital, South Haven, Michigan

9:00 a.m.–12 noon—REGISTRATION

9:00–10:00 a.m.—INTERDEPARTMENTAL AND INTERPERSONAL RELATIONS—a committee report

10:15–12 noon—LATEST IN EQUIPMENT AND ADMINISTRATION RESEARCH

Research in Institutional Equipment—Gertrude Blaker, Associate Professor, School of Hotel, Restaurant, and Institution Management, Michigan State University, East Lansing

Significant Trends in Food Service and Equipment—Anne Claire Donovan, Dietary Consultant, Equipment Planning Branch, Division of Hospital and Medical Facilities, Public Health Service, Washington, D.C.

Research in Food Administration—Beatrice Donaldson, Ph.D, Professor and Head, Institution Management, School of Home Economics, The University of Wisconsin, Madison

10:15 a.m.–12 noon—LATEST DEVELOPMENTS IN OBESITY

Perspectives on Obesity—George H. Berryman, M.D., Ph.D., Director, Medical Science Projects, Abbott Laboratories, and Clinical Assistant Professor of Medicine, College of Medicine, University of Illinois, Chicago

Psychological Aspects of Obesity—Albert Stunkard, M.D., Associate Professor, Department of Psychiatry, University of Pennsylvania, Philadelphia

New Data on Desirable Weights by the Society of Actuaries—Edward A. Lew, Actuary and Statistician, Metropolitan Life Insurance Company, New York, New York

12:15–2:00 p.m.—HISTORY OF NUTRITION AND DIETETICS LUNCHEON

A Forty-Year Look at Nutrition Research—C. A. Elvehjem, Ph.D., President, The University of Wisconsin, Madison

2:15–3:30 p.m.—ADMINISTRATION

Planned Growth for the Dietitian—Margaret L. Mitchell, Vice President–Food Production, The Stouffer Corporation, Cleveland

2:15–3:30 p.m.—RECENT FINDINGS IN DIET AND DISEASE

Oral Hypoglycemic Agents in Treating Diabetes—Max Miller, M.D., Associate Professor of Medicine, School of Medicine, Western Reserve University, Cleveland

Effects of Polyunsaturated Lipids on Tocopherol Requirements—Max K. Horwitt, Ph.D., Director, L. B. Mendel Research Laboratory, Elgin (Ill.) State Hospital

Diet and Heart Disease: Facts and Unanswered Questions—Theodore B. Van Itallie, M.D., Director of Medicine, St. Luke's Hospital, Morningside Heights, New York, New York

IMPORTANT . . . MAIL YOUR APPLICATION PROMPTLY

Application for Housing Accommodations

THE AMERICAN DIETETIC ASSOCIATION

Cleveland, Ohio • October 18-21, 1960

For your convenience in making hotel reservations for the coming meeting of THE AMERICAN DIETETIC ASSOCIATION, hotels and motels, with rates, are listed below. Use the form at the bottom of this page, indicating your first, second and third choice. Because of the limited number of single rooms available, you will stand a much better chance of securing accommodations of your choice if your request calls for rooms to be occupied by two or more persons. All reservations must be cleared through the Housing Bureau. ALL REQUESTS FOR RESERVATIONS MUST GIVE DEFINITE DATE AND HOUR OF ARRIVAL AS WELL AS DEFINITE DATE AND APPROXIMATE HOUR OF DEPARTURE, ALSO NAMES AND ADDRESSES OF ALL PERSONS WHO WILL OCCUPY ACCOMMODATIONS REQUESTED *MUST* BE INCLUDED.

Hotel	Single Bed	Double Bed	Twin-Bedded	Suites
Auditorium	$6.00- 9.50	$7.75-11.50	$11.00-14.00	$28.00-38.00
Manger	6.00-10.00	9.00-11.00	10.00-14.50	22.00-32.50 2 rms.
		Studios	14.50-30.00	39.00-60.00 3 rms.
Pick-Carter	6.50-10.75	9.50-14.00	11.00-16.00	27.50-37.50 2 rms.
				41.50-51.25 3 rms.
Sheraton-Cleveland*	7.00-11.00	10.50-14.50	13.50-20.50	26.00-51.50 2 rms.
				47.00-70.00 3 rms.
Statler-Hilton	6.50-12.50	13.00-16.00	14.00-28.00	28.00-39.00 2 rms.
		Studios	16.00-30.00	51.00 3 rms.
Motel				
Colonial House Motel	7.50	9.00	10.00	
Colony Motor Hotel	4.00	6.00		
Lake Erie Motel	8.00	11.00-14.00	14.00	

In the event that the hotel room rate structure is changed prior to the above convention these rates will be changed accordingly.
*Headquarters hotel

ALL RESERVATIONS MUST BE RECEIVED PRIOR TO SEPTEMBER 15, 1960

Hotel Reservation Bureau, A.D.A.
Cleveland Convention Bureau
511 Terminal Tower
Cleveland 13, Ohio

Please reserve the following accommodations for: THE AMERICAN DIETETIC ASSOCIATION Convention in Cleveland, October 18-21, 1960:

Single Room_____ Double-Bedded Room_____ Twin-Bedded Room_____

2 Room Suite_____ Other Type of Room_____

Rate: From $_____ to $_____

First Choice Hotel_____
Second Choice Hotel_____
Third Choice Hotel_____

Arriving at Hotel (date) _____ hour ____ A. M. ____ P. M. Leaving (date) _____ hour ____ A. M. ____ P. M.

THE NAME OF EACH HOTEL GUEST MUST BE LISTED. Therefore, please include the names of *both* persons for *each* double room or twin-bedded room requested. Names and addresses of all persons for whom you are requesting reservations and who will occupy the rooms asked for:

_____

_____

_____

(Individual Requesting Reservations)

Name _____

Address _____

City and State _____

If the hotels of your choice are unable to accept your reservation the Housing Bureau will make as good a reservation as possible elsewhere provided all hotel rooms available have not already been assigned.

COMMERCIAL EXHIBITORS—43rd ANNUAL MEETING
THE AMERICAN DIETETIC ASSOCIATION
CLEVELAND PUBLIC AUDITORIUM, OCTOBER 18, 19 and 20, 1960

Aatell & Jones, Inc.
Abbott Laboratories
Allen Foods, Inc.
Amcoin Corp.
American Dry Milk Institute, Inc.
American Gas Association
American Institute of Baking
American Sheep Producers Council, Inc.
Armour and Company
Automatic Food Shaping Co., Inc.

The Baker Laboratories, Inc.
Baker Perkins, Inc.
Bally Case and Cooler, Inc.
Beech-Nut Baby Foods
Best Foods Div., Corn Products Company
Best Products Company
G. S. Blakeslee & Co.
S. Blickman, Inc.
Blue Water Seafoods Co.
Boonton Molding Co.
The Borden Company
Brookpark, Inc.
Bucks County Enterprises, Inc.
Buffalo China Inc.
Bunn Capitol Company

Calgon Co., Div. of Hagen Chemicals & Controls, Inc.
California Prune Advisory Board
Cambro Mfg. Co.
Campbell Soup Company
F. S. Carbon Co.
Carnation Company
Cereal Institute, Inc.
The Champion Dish Washing Machine Co.
Chicago Dietetic Supply House, Inc.
Clark Products, Inc.
Cleveland Range Co.
Cling Peach Advisory Board
The Colson Corporation
Continental Coffee Co.
Corning Glass Works
Cory Corporation
Cramore Products Inc.
Crescent Metal Products, Inc.
Custom Food Products, Inc.

DCA Food Industries, Inc.
Dennis Chicken Products Co., Inc.
Diamond Crystal Salt Co.
The Dietene Company
Edward Don & Company
Dri-Heat Food System, Inc.
The Dubois Co., Inc.
Duke Manufacturing Co.,
Durkee Famous Foods

Economics Laboratory, Inc.
Encyclopaedia Britannica
E. P. Co., Inc.
Evaporated Milk Association

Fearn Foods Inc.
A. J. Fish Oven Co.
Florida Citrus Commission
Food Machinery and Chemical Corp.
Foster Refrigerator Corp.
E. Fougera and Company, Inc.
W. H. Frick, Inc.
The Frito Company

General Foods Corp.
General Mills, Inc.
Gerber Products Co.
Great Books of the Western World
Groen Manufacturing Company

Hawaiian Pineapple Company, Ltd.
H. J. Heinz Co.
Heublein, Inc.—Food Div.
The Hobart Manufacturing Company
Hotpoint Co.—Commercial Equipment Dept.

Institutions Magazine
Insinger Machine Co.

Kellogg Company
Keyes Fibre Company
Klenzade Products, Inc.
Koch Refrigerators, Inc.
Kraft Foods

Legion Utensils Co., Inc.
Libby McNeill & Libby
Eli Lilly and Company
Lily-Tulip Cup Corp.
Lincoln Mfg. Co., Inc.
J. B. Lippincott Company
Lo-Sodium Dairy Products Corp.
Lowerator Div., American Machine & Foundry Company

Market Forge Company
Mead Johnson & Company
Mealpack Corporation
Meals-on-Wheels—Crimsco, Inc.
Mercury Mfg. Co.
Metropolitan Life Insurance Company
Metropolitan Wire Goods Corp.
Middleby-Marshall Oven Company
Louis Milani Foods, Inc.
L. J. Minor Company
Mobile Kitchens, Inc.
Molded Fiber Glass Tray Co.
Multi-Counter Mfg. Co.

National Biscuit Company
National Dairy Council
National Live Stock and Meat Board
The Nestlé Company, Inc.

The H. R. Nicholson Company
Nutting Truck and Caster Company

Ocean Spray Cranberries, Inc.
Samuel Olson Mfg. Co., Inc.
John Oster Manufacturing Company

L. H. Parke Company
Pasco Packing Company
Pet Milk Company
Pfaelzer Brothers
The Pillsbury Company
Poultry and Egg National Board
Processed Apples Institute, Inc.
Procter & Gamble

The Quaker Oats Company
Qualheim, Inc.

Ralston Purina Company
Raytheon Company
Rich Products Corp.
Rogers Brothers Company
Rose Brand Syrup Supply Co., Inc.

W. B. Saunders Company
Savory Equipment, Inc.
Ad. Seidel & Son, Inc.
John Sexton & Co.
Shampaine Electric Company
Shenango China, Inc.
South Bend Range Corporation
Southern Cross Manufacturing Corp.
Southern Equipment Co.
Sparta Brush Co., Inc.
Standard Brands Inc.
Stanley Supply Co., Inc.
The Stuart Company
Swartzbaugh Mfg. Co.
Swift & Company
Syracuse China Corporation

Theodore Equipment Corp.
Emery Thompson Machine & Supply Co.
Thornton Canning Company
Toastmaster Div., McGraw-Edison Company
Toledo Scale

Vacuum Can Company
Webster Van Winkle Corporation
Victory Metal Mfg. Co.
Volume Feeding Management
Vulcan-Hart Corporation

Walker China Company
Waring Products Corporation
N. Wasserstrom & Sons, Inc.
Wear-Ever Aluminum, Inc.
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How You Can Double the Milk Nourishment of Meals—and Cut Cream Costs ⅔

Ask your chef to change to Carnation Evaporated Milk for Cooking and Coffee "Creaming"

TWICE THE VITAMINS, PROTEINS, MINERALS OF MILK

Plus extra Vitamin D – so important for "indoor" diets. Carnation is concentrated to double richness by evaporation. Only water is removed, and nothing is added but Vitamin D – no sweetening, no preservatives.

ADDS CREAMY SMOOTHNESS TO RECIPES

Because it looks like cream, pours like cream, and blends even better in cooking, double-rich Carnation gives exceptionally smooth results in sauces, icings, desserts and any recipe calling for milk or cream.

MAKES COFFEE TASTE RICHER: HAS ⅓ LESS CALORIES THAN CREAM

Because Carnation is evaporated to double richness, it makes coffee taste richer. Yet it has ⅓ less calories than cream, and it costs only ⅓ as much as cream!

Clip this note for your chef:

BETTER COOKING RESULTS AT ⅓ THE COST—WITH

Carnation Evaporated Milk

Simple Storage • No Refrigeration
No Souring Waste • Uniform Cooking Results

CHEESE SAUCE: No shortening or flour needed when you use Carnation. It blends smoothly with process American cheese, cuts costs, improves results.

CREAM SAUCE: Only half the usual flour and shortening needed. Carnation is twice as rich as whole milk in butterfat as well as proteins, vitamins, minerals.

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MOLDED GELATIN SALADS, cream pies, frostings, ice cream sauces: At ⅓ the cost of cream you can serve more of these palatable favorites.

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Complete set of 20 tested Carnation quantity-recipe cards. Just revised – easy, palatable, practical! Large 5"x 8" cards. Write to Mary Blake, Carnation Co., Dept. C-100, Los Angeles 19, Calif.

"from Contented Cows"

(This card is ½ actual size)

DESSERT

Baked Custard

Ingredients	24 servings	48 servings
Beaten eggs	10 (2 cups)	20 (1 quart)
Salt	1½ teaspoons	1 tablespoon
Sugar	1¼ cups (9 ounces)	2½ cups (1 pound, 2 ounces)
Undiluted CARNATION EVAPORATED MILK	1½ quarts	3 quarts
Water	1 quart	2 quarts
Vanilla	1 tablespoon	2 tablespoons
Nutmeg	If desired	If desired
Pan size	1 – 11" x 19" x 2¼"	2 – 11" x 19" x 2¼"
Baking temperature	350°F.	350°F.
Baking time	35 to 45 minutes	35 to 45 minutes

FOR COOKING AND IN COFFEE—TRY CARNATION EVAPORATED MILK

World's leading brand of evaporated milk

Dr. Johnson to Continue as A.D.A. President. The members of the Executive Board of The American Dietetic Association in August regretfully accepted the resignation of Cora E. Kusner, President-Elect, because of illness of her husband. On advice of the Association's attorney, the Nominating Committee which prepared the 1960-61 ballot was reactivated. A special ballot was prepared and submitted to the membership for the election of office of President-Elect of The American Dietetic Association for the balance of the term 1959-60 (to be President for 1960-61). The name of Doris Johnson, Ph.D., current President of the Association, was presented on the ballot, and a provision was also made for a write-in vote.

The Tellers Committee reported 5626 votes were cast: 5400 for Dr. Johnson, and 226 for write-in candidates.

Thus Dr. Johnson will serve in the dual capacity of President and President-Elect until October 21, at which time she will succeed herself as President of the Association, with her new term of office running until October 1961. The Association is grateful to Mrs. Kusner for her advice and participation in the direction and management of its affairs for eleven months during which she served as President-Elect. She capably edited five issues of the *Courier*, attended three Executive Board meetings, and participated in policy-making matters as they arose in the interim.

Dr. Eppright Honored. Ercel S. Eppright, Head, Department of Foods and Nutrition, Iowa State University, was one of seven faculty members recently cited for "long, outstanding, and inspiring service."

VA Advisory Appointment. Dr. Margaret L. Ross, A.D.A. Secretary, has been appointed to serve as a member of the Veterans Administration's Special Medical Advisory Group. The purpose of this group is to advise "the Administrator of Veterans Affairs and the Chief Medical Director with respect to policies and programs designed to insure the best possible medical care and treatment of disabled veterans." Dr. Ross succeeds Dr. Margaret A. Ohlson, who completed her five-year appointment in June.

Coming Events. *The American Dietetic Association*, 43rd Annual Meeting, October 18 to 21—Cleveland

American School Food Service Association, 14th annual convention, October 2 to 6—Washington, D. C.

Association of Military Surgeons, October 31 to November 2—Washington, D. C.

American Public Health Association, 88th annual meeting, October 31 to November 4—San Francisco

International Society of Food Service Consultants, technical meeting, November 10 to 12—Cornell University, Ithaca, New York

13th World Health Assembly. During the Thirteenth World Health Assembly, May 3 to 20, in Geneva, Switzerland, three new member states and eight associate members were admitted to the World Health Organization. New members are: Cameroun, Republic of Togoland, and Kuwait. The new associate members are: Cyprus, Central African Republic, Republic of the Congo, Republic of the Ivory Coast, Republic of Gabon, Republic of the Upper Volta, Republic of the Niger, and Federation of Mali. Total membership of WHO is now 101, of which, 21 members are on the continent of Africa.

The Assembly devoted a major part of its discussion to the world-wide malaria eradication campaign and to the critical state of the WHO Malaria Eradication Special Account. The Assembly expressed doubt that eradication operations could be financed through voluntary contributions to the account without the full support of the economically developed countries of the world. The Director-General of WHO made a strong plea for contributions to the account, calling attention to the fact that the U. S. had provided more than 90 per cent of the funds available. It was generally agreed that adequate financing is the only element lacking to successful conclusion of the global malaria eradication program which began in 1955 under WHO's leadership. Reports from member countries noted satisfaction with technical achievements of the campaign, with more than twenty countries reporting increased general prosperity as a sequel to the malaria eradication efforts.

The USDA expects the following foods to be in good supply during October:

Protein foods
Beef
Cheese
Chickens—broilers and fryers
Turkeys
Other foods
Cranberries
Potatoes
Rice

Frozen Foods for October. To aid institutional food planners, the National Association of Frozen Food Packers offers these suggestions for October menus:

Frozen Fruits and Desserts

APRICOTS—A delicious surprise in a fruit cup, and equally delightful in gelatin fruit salads.

BLUEBERRIES—Blueberry pancakes for breakfast, blueberry muffins for lunch, and blueberry pudding for dinner.

PEACHES—Frozen peach halves are popular with fruit-minded dessert eaters. Touched up with spices, frozen peaches also make delicious cobblers and tortes.

STRAWBERRIES—Use in gelatin salads for flavor and color, or in desserts. A deluxe three-in-one dessert may be made with a cake square topped with a mound of ice cream and frozen strawberries.

Frozen Vegetables

ASPARAGUS — Provides the "elegant" touch. Because it is already trimmed and cleaned, labor cost is minimized.

BROCCOLI — Another stalk vegetable that is decorative on the plate. Serve with lemon butter for dinner, and with cheese sauce as the entrée for lunch or supper.

CORN, CUT—Make corn chowder by cooking the sweet kernels right in the hot milk, together with the usual seasonings.

SPINACH—For luncheon, serve a nest of cooked leaf spinach with a poached egg. Chopped frozen spinach is easy to use in a spinach soufflé or in cream-of-spinach soup.

POTATO PRODUCTS—Whether you need French fries, potato puffs, Rissole potatoes, or diced potatoes on your menu, they are available in frozen form.

Special Nutrition Statistics Courses. "Dietary Surveys and Appraisal in Epidemiologic Research" was one of ten courses offered last summer at the University of Minnesota's Graduate Summer Session of Statistics in the Health Sciences. The six-week course, designed for nutritionists and statisticians, was attended principally by those involved in epidemiologic studies of chronic disease in this country. Instructors were: Dr. Emil Jebe, Willow Run Laboratory, University of Michigan, and J. Austin Heady, Social Medicine Research Unit, London Hospital Research Laboratory, London, England. Olive Hayes, Heart Disease Control Program, Public Health Service, served as nutrition research person.

A ten-day workshop for nutritionists and statisticians engaged in cardiovascular disease studies was also given at the University of Minnesota this summer under the sponsorship of the Heart Disease Control Program of the Public Health Service. The workshop, which was concerned with dietary survey methodology, was integrated with the six-week statistics course.

Booklet on Diet for Teen-Agers. *Personality "Plus" Through Diet—Foodlore for Teen-Agers* by Charles Glen King and Gwen Lam has been published as Public Affairs Pamphlet No. 299. After indicating how the teen-ager can take stock of himself by means of a chart, the authors go on to explain how food affects one's appearance, performance, and personality. The four-food-group plan is explained, and the functions of protein, calcium, iron, thiamine, riboflavin, vitamin A, and vitamin C are briefed. A mealtime guide for breakfast, lunch, and dinner is included, as well as suggestions for snacks and a section on weight control. Copies of this booklet may be ordered from: Public Affairs Committee, Inc., 22 East 28th Street, New York 16; 25 cents each.

Adolescent Food Habits. *Food Patterns of Washington Adolescent Children* is the title of Bulletin 613 of the Washington Agriculture Experiment Stations, Pullman, Washington. The authors, Margaret M. Hard and Nettie C. Esselbaugh, report a study of 247 fifteen- and sixteen-year-old boys and girls in two counties of Washington State. The subjects provided both a dietary history and a seven-day diet record. Other data were obtained by dental and physical examinations, medical histories, biochemical blood tests, biomicroscopic observations and color photography of selected tissues, basal metabolic rates, and bone density roentgenograms. Findings are reported in terms of: food groups consumed, snacks, meals missed, food likes and dislikes, consumption of sweets, and food production and preservation.

On the whole, the boys presented a better dietary picture than the girls, who should eat more eggs, fruits and vegetables, milk and cheese, and whole grain cereals. The boys' diets would be improved with more milk and cheese and fruits and vegetables. For both sexes, the need for more "protective" foods and fewer calories from sweets and soft drinks was indicated. On the whole, however, food acceptance was comparatively catholic, with only a few subjects expressing a great liking for or aversion to any one food. More than half of the subjects had missed at least one meal during the week of the dietary record.

Career Leaflet. "Is Home Economics the Career for Your Daughter?"—a four-page leaflet enumerating opportunities in home economics and the advantages of careers in the field—has been issued by the American Home Economics Association. To assure wide-spread distribution, copies may be ordered at a cost of 100 for $1 from: American Home Economics Association, 1600 Twentieth St., N.W., Washington 9, D. C.

Nursing Home Bibliography. An annotated bibliography, "Nutrition and Food Service in Nursing Homes and Homes for the Aged" has been compiled by the Chronic Disease Program, Public Health Service, Washington, D. C. In it, almost sixty-five references have been listed under the following headings: general background, food habits and nutrition of older persons, dietary consultation, food service, manuals, newsletters, and miscellaneous publications. References recommended for reading by nonprofessional personnel are marked with asterisks.

Guide to Indexing and Abstracting. A compilation of indexing and abstracting services in science and technology has been prepared by the Science and Technology Division of the Library of Congress, under the sponsorship of the National Science Foundation. It is meant to serve as a guide in searching the literature and, in addition, aid in the coordination and improvement of coverage by those producing bibliographic services. All fields of science and technology have been covered. The information included was obtained by questionnaire sent to approximately nine hundred organizations. Entries are classified according to the following subjects: science and technology, general, mathematics, physics, chemistry, biology, science of man, medicine, earth sciences, agriculture, and technology.

Copies of *A Guide to U. S. Indexing & Abstracting Services . . . in Science and Technology* (Report No. 101) may be ordered for $2 each from the National Federation of Science Abstracting and Indexing Services, 301 East Capitol Street, Washington 3, D. C.

New USDA Booklets. The USDA's popular *Food for the Family with Young Children* has been revised and reissued as Home and Garden Bulletin No. 5. Its contents include information on: planning meals, food for the expectant mother, a food plan for a week based on January 1960 prices, a shopping guide for one week, one week's menus, reducing your food bill, and foods included in each of eleven food groups.

Home Care of Purchased Frozen Foods is the title of Home and Garden Bulletin No. 69. The following topics are covered: storage temperature and time, buying frozen foods, judging quality, managing freezer storage, defrosting the freezer, care of food in emergencies, and refreezing.

The third new leaflet is *Home Freezing of Poultry* (Home and Garden Bulletin No. 70). It illustrates directions for cutting up chicken and packaging poultry for freezing, a timetable for thawing, as well as instructions for freezing cooked poultry, including recipes.

Single copies of all three of these bulletins may be requested from the Office of Information, U. S. Depart-

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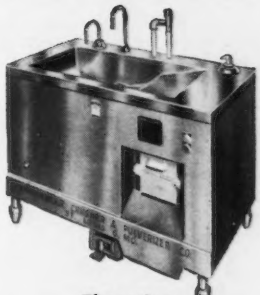

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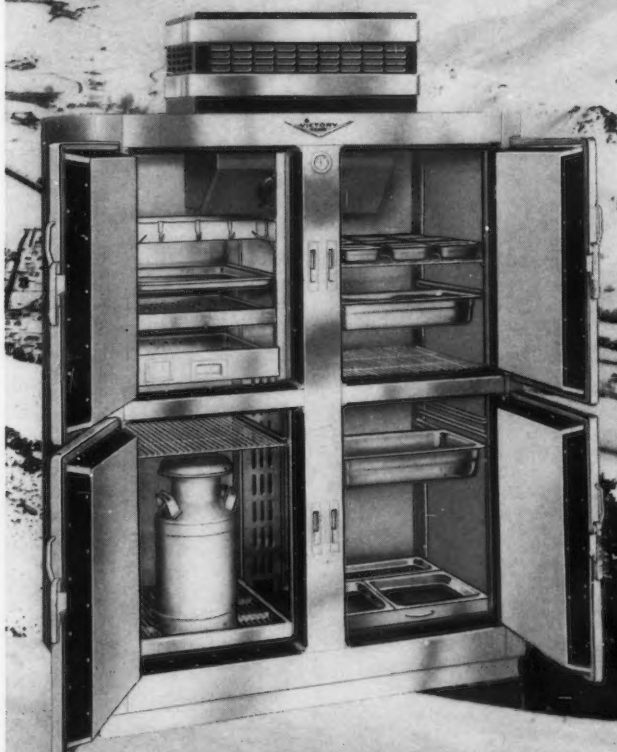

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Pillsbury Awards. Applications are now being received for the Pillsbury Awards Program for 1960. This program, established two years ago, is open to college home economics majors and provides that the winner become Associate Director of the Pillsbury Junior Home Service Center for one year. During this year, a carefully planned training program will provide the winner with a variety of work experiences which will apply and expand her previous academic training. The winner will advise the company as to what young people want and need and will represent the company before youth groups and organizations. She will receive, in addition to her year's salary of $4500, a cash award of $1000.

Six Honor Awards of $250 each will also be given, and recipients will be invited, along with their Deans of Home Economics, to visit with Pillsbury in Minneapolis for two days, with all expenses paid. In addition, citations will be presented to all applicants for the awards who have been screened and approved by their colleges. No more than five applications may be submitted by any college.

Further information, including application forms, has been sent to colleges and universities throughout the U.S. Applications must be received by the Pillsbury Awards Program, Box 517, Ansonia Station, New York 23, no later than November 28, postmarked no later than November 23.

Interns Graduate. Sisters of six religious orders and ten young women completed their dietetic internship at *St. Marys Hospital*, Rochester, Minnesota, on July 13. Speaker for the graduating ceremonies was Sister M. Michael of St. Cloud Hospital, St. Cloud, Minnesota, who spoke about her famous father, Joyce Kilmer. Two special awards were made: the first, the St. Marys Award—a cash prize given to one who excels in professional aptitude and qualities of leadership—went to Sister M. Fabiana of Germany; the other, the Mary Agnes Foley Award conferred for proficiency in dietetic instruction, was presented to Dorothy Newton, Spring Hill, Kansas. The other graduates were:

Sister M. Albinette, Hamburg, New York
Anice Blanc, Price, Utah
Sister M. Annice, St. Francis Convent, Springfield, Illinois
Sister M. Carla, Mt. Augustine, West Richfield, Ohio
Jeanne Cowden, Oklahoma City
Mary Doyle, Newton, Massachusetts
Barbara Hornyak, Cleveland
Mary Hunt, Faribault, Minnesota
Genevieve Ingersoll, Cincinnati
Sister M. Irmina, St. Joseph Convent, Stevens Point, Wisconsin
Joann O'Meara, Williamsburg, Iowa
Sister Rosellen, St. Paul
Ann Skeabeck, Erie, Pennsylvania
Mary Wathen, Lebanon, Kentucky

Thirteen members of the 1960 class of dietetic interns at *Henry Ford Hospital*, Detroit, were honored at a dinner on July 21. Each of the following received the official gold pin, cap, and diploma which the institution awards:

Eleanor Allaire, Carmel, California
Aixa Conde, San Juan, Puerto Rico
Lourdes Crus, Quezon City, Philippines
Florence Delynko, Greensberg, Pennsylvania
Dorothea Iverson, New Haven, Connecticut
Jean Kido, Honolulu, Hawaii
Nancy O'Halloran, Chicago
Nguyen-Kim Oanh, Viet Nam
Maryann Pettis, Detroit
Sister Mary Rosita, Detroit
Emilie Stenger, Midland, Michigan
June Weaver, Mosse Point, Mississippi
Theresa Sauner, Milwaukee

On July 22, graduation exercises for five dietetic interns were held at *Cook County Hospital*, Chicago. Dr. Irvin F. Hummon, Director, Department of Radiology, spoke on "Dietetics and the Atomic Age." Interns who received certificates and pins were:

Adoracion G. Bustos, University of the Philippines
Florene I. Dennis, Tuskegee Institute
Billie M. Dunston, Alcorn A. & M. College
Patricia M. Tighe, Framingham State Teachers College
Wilbur A. Tyler, Southern University

From the *University of California Medical Center*, San Francisco, comes the announcement of the recent graduation of thirteen interns. Pins were presented to:

Jane Boehrer, University of Wisconsin
Mary Cooper, University of New Mexico
Sandra Day, University of Utah
Doris Disch, Iowa State University
Rachel Donnan, Michigan State University
Laura Lee Falk, Idaho State College
Dorian Fuchs, Hunter College
Patricia Demsey Johnson, University of California at Berkeley
Ai Arlene Kasa, University of California at Berkeley
Nancy Kuehn, University of California at Berkeley
Perie Burrow Mercer, Washington State University
Mikido Shinoda, University of California at Berkeley
Ann Winship, MacDonald College, McGill University

On August 25, eight dietetic interns completed their year's work at *Grace-New Haven Community Hospital*, New Haven, Connecticut. The graduates are:

Norine Daley, College of St. Elizabeth
Ofelia Garcia, University of the Philippines
Christine Gill, University of Washington

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Washing time for mixing bowls, cooking utensils, steam table pans, food transport containers . . . even garbage pails . . . is greatly reduced over other methods—and the operator is free to do other jobs during the automatic "wash-drain-rinse" cycle. Because it *operates* at an *elevated temperature*, an A-F "Panhandler" not only washes thoroughly and uniformly—but *sanitizes!*

Two compact models are available to fit any kitchen. Either can be supplied for steam, gas or electric heating.

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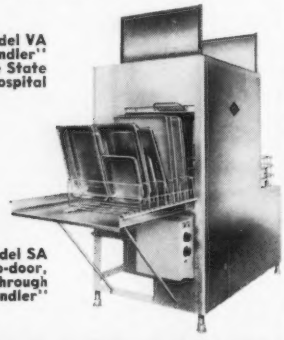

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Marjorie Grant, Regis College
Eleanor Horman, University of Wisconsin
Ruby Mensah, University of Connecticut
Nia Sanstrom, Cedar Crest College
Angela Tabellerio, University of Rhode Island

AMSC News. Direct Regular Army appointments in the grades of second and first lieutenant may now be given to qualified civilian dietitians, physical therapists, and occupational therapists. Previously, persons entering the Army Medical Specialist Corps were required to serve on active duty as U. S. Army Reserve officers before becoming eligible for Regular Army commissions. The new regulation provides that single women without prior military service may be appointed as first lieutenants in the Regular Army if they have: (a) at least three years of appropriate professional experience *or* (b) a master's degree in an appropriate specialty and at least one year of professional experience.

The following personnel announcements are also made by the AMSC:

PROMOTIONS

Major to Lt. Colonel
Mary Lipscomb
Captain to Major
Helen M. Bjerke
Dorothy M. Kaiser
Mary A. Neacy

SEPARATIONS

Retired
Lt. Col. Helen M. Davis
Maj. Mary C. Burnham
Maj. Dorothy Miller
Relieved from Active Duty
1st Lt. Patricia Lancaster
1st Lt. Eloise Nielson
1st Lt. Lois D. Piper
1st Lt. Colleen Wessman

Dietitian Is Assigned to Air Force Academy. Capt. Delpha June Foster has been assigned as the first dietitian at the Air Force Academy in Colorado Springs. A graduate of The Ohio State University, Capt. Foster took her dietetic internship at Indiana Medical Center, Indianapolis. She came into the Air Force Medical Specialists Corp in October 1959.

Storing Cottage Cheese. Metal foil containers kept cottage cheese an average of 6 degrees cooler than other containers during a storage test in self-service markets conducted by the Minnesota Agricultural Experiment Station. The difference in temperature was especially important for the rows of containers near the open top of the cabinet where the temperature is higher and more variable. In fiber containers near the top of the cabinet, the cottage cheese was above 45° F., whereas cheese in ribbed foil or foil-wrapped packages stayed below this temperature, which is generally considered the upper limit for holding quality.

Cottage Cheese Dip. Fresh, homogenized cottage cheese, frequently called "dairy dressing" or "dip," is a new dairy product developed by the New York State (Cornell) Agricultural Experiment Station. It is manufactured by putting fresh, sweet, rennet-type creamed cheese in a mixer with about 1 per cent salt and the flavoring desired, then agitating it at high speed until smooth. When it shows a shiny surface and has a satisfactory flow, it is pumped through a homogenizer and piped into a mechanical filler, from which the packages are filled. Market sales indicate the most popular flavors for the dip are Roquefort and blue cheese, followed by horseradish, onion, and pimiento. Sales tests indicated that calling the product "dairy dressing" or "dip," rather than "homogenized cottage cheese" is most successful, especially when emphasis is put on its low-fat quality. Combining high nutritional value and low caloric content with a smooth texture, it makes an ideal dip or spread for snacks, or it may be used as a dressing for baked potatoes or cold salad.

Frozen French Toast. To help boost egg sales and improve the protein intake at breakfast, frozen French toast has been developed by the New York State (Cornell) Experiment Station, Ithaca, New York. Tryouts in three supermarkets in Ithaca were so successful that further market tests previously scheduled for two other cities have been cancelled. In twelve weeks, 5000 boxes were sold. The biggest boom was during the first week when the product was being actively promoted. Sales eventually leveled off to a total of 200 boxes a week for all stores where tests were conducted.

News of State Associations

Florida Dietetic Association. New officers for 1960-61 for the Florida Association will be: President, Rebecca Norfleet, Orange Memorial Hospital, Orlando; President-Elect, Dorothy Mims, Ft. Lauderdale; Secretary, Sister Helen Marie Pellicer, S.S.J., Mercy Hospital, Miami; and Treasurer, Marion Marotta, Tampa.

Georgia Dietetic Association. Career guidance and recruiting were the points of emphasis of the program of the Georgia Dietetic Association in the past year. Throughout the state, twenty-two dietitians in sixteen cities showed the A.D.A. film, "View from the Mountain" and/or presented talks on careers in dietetics to approximately three thousand people. The groups contacted included: home economics students in colleges and high schools, the general public on hospital days at hospitals, F.H.A., 4-H Clubs, Girl Scouts, and Campfire Girls. "Dietitians in Demand" and "Chart Your

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- *Mechanical forced air refrigeration system cools instantly to 40°.* ¼ hp compressor cools faster than your refrigerator. Does away with need for cold plates, deep freezers or pre-freezing.
- *Spacious heated compartment.* Fully insulated heated compartment contains 8 easy-glide drawers with room on each for 3 nine-inch dinner plates and 3 bouillon cups. Thermostatic control keeps cooked foods oven-fresh and piping hot.
- *Stainless steel construction for lifetime service.* Foodveyor is constructed of stainless steel inside and out. Tray slides and heated drawers are fabricated of heavy gauge lightweight aluminum.

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Course,"—A.D.A. leaflets—were distributed.

Hawaii Dietetic Association. During the last year, the Community Nutrition Section has been responsible for a number of fruitful activities related to fighting food misinformation. In addition to planning a monthly meeting on the subject of food faddists, several articles were written which were published in Honolulu newspapers. A column in the Honolulu *Star-Bulletin* pointed out the dangers of following fads, and in answer to faddist articles in the Honolulu *Advertiser*, two series of articles were prepared and published, one on general nutrition and the other on nutrition for teen-agers. At least one teacher made the latter required reading and gave tests on the articles. Libraries were also informed about faddist books and provided with lists of reliable books on nutrition. In addition, excerpts of reviews from this JOURNAL and other sources were sent to them. A protest by the Section chairman also contributed to a community reaction which resulted in cancellation of radio, television, and lecture engagements by the author of the book, *Arthritis and Common Sense*.

Kansas Dietetic Association. Winner of the 1960 Kansas scholarships sponsored by the T. V. DuBois Foundation is Ruth Anne Strain, who is currently a dietetic intern at the University of Kansas Medical Center and a candidate for a master's degree. Miss Strain, who was a 1960 graduate from Texas Technological College, was also the recipient of a Texas Dietetic Association scholarship during her senior year.

Louisiana Dietetic Association. The silver anniversary meeting of the Louisiana Dietetic Association will be held November 18 and 19 in Lafayette. The program as scheduled will include a report by A. June Bricker, Director, Field and Community Health Bureau, Metropolitan Life Insurance Company, New York city, on her research on food habits of girls in their upper teen years. Four discussion groups will consider: administrative dietetics, teaching, school lunch, and therapeutic dietetics. A report of the 1960 White House Conference on Children and Youth will be made by Ansta Barr, Regional Nutritionist, Children's Bureau, Dallas. Other features of the program will be talks by: J. Perry Brando, Public Relations, Esso Standard Oil Company, Baton Rouge, on "Oral Communications"; and observations on food habits and the educational system in Russia by Dr. Gainer A. McConnel, Head, Department of Education, Newcomb College, Tulane University, New Orleans.

Michigan Dietetic Association. "Building Blocks" will be the theme of the fall convention of the Michigan Dietetic Association, to be held in Grand Rapids on November 3. The program will include:

"Amino Acid Research"—Dr. A. G. Hogan, Research Consultant, National Live Stock and Meat Board

"Biochemical Effects of an Imbalance of the Amino Acid, Threonine"—Dorothy Arata, Associate Professor, Michigan State University

"Phenylketonuria"—C. O. Rupe, Ames Research Laboratory

"Humanizing the Complete Protein in an Interviewing Session"—Sydney Youngsma, Calvin College

New Jersey Dietetic Association. The New Jersey Dietetic Association will be one of the sponsors of a workshop on "Starting a Food Service Project in Your Community for the Aged and Homebound," to be held in October in Asbury Park. Carolyn Addisson, Nutritionist, Newark Chapter, American Red Cross, is serving as chairman of the planning committee for this meeting.

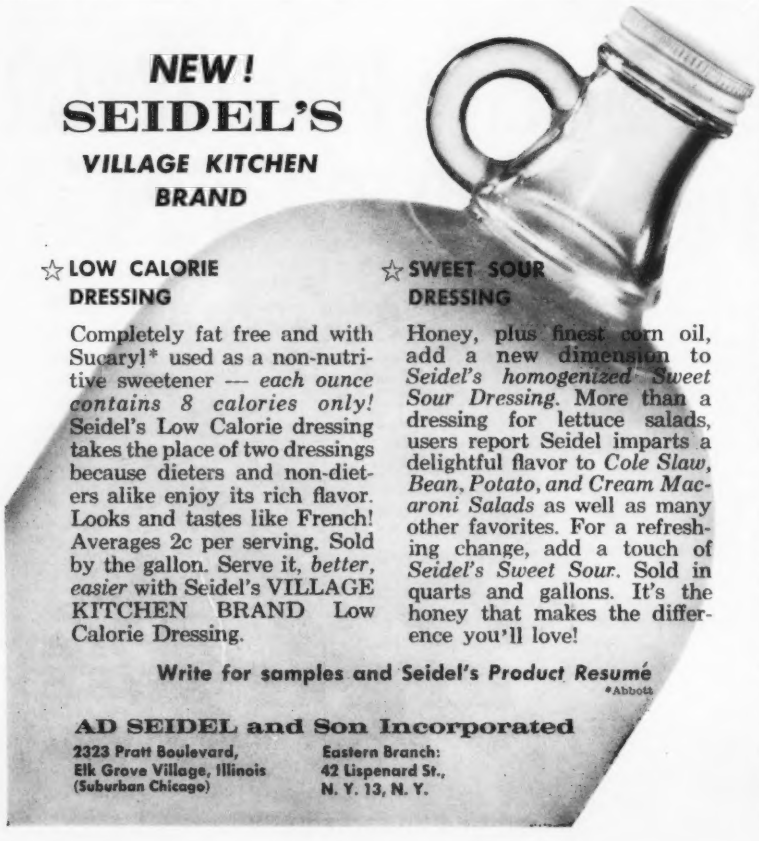
Association Activities

A.D.A.-A.H.E.A. Joint Committee on Rehabilitation. The A.D.A.-A.H.E.A. Joint Committee on Rehabilitation conducted a workshop, "Expanding the Services of the Home Economist in Rehabilitation," in Denver, June 25 to 27. This workshop was presented in cooperation with Colorado State University and the Denver Office of Vocational Rehabilitation. Chairman of the Workshop Planning Committee was Ruth B. Hayes. The program was designed to: (a) improve methods of evaluating the needs and problems of the aged, the handicapped, and the disabled; and (b) improve the effectiveness of the home economist in rehabilitation by developing channels of communication, methods, and procedures.

Sections of the American Home Economics Association which participated on the workshop included Family Economics; Family Relations and Child Development; Foods and Nutrition; Home Management; Housing and Household Equipment; Textiles and Clothing; Colleges and Universities; Adult Education; Extension Service; Business; Homemaking; and Health and Welfare. The A.D.A. sections which cooperated were: Community Nutrition, Diet Therapy, and Education.

The recommendations from the workshop have been submitted to the A.D.A. Executive Board for review and consideration. These included the recommendation that appropriate workshops on the local and state level be held.

Representatives Nelda Ross Larsson, New York City, and Corinne H. Robinson, Drexel Institute of Technol-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Honey, plus finest corn oil, add a new dimension to *Seidel's homogenized Sweet Sour Dressing*. More than a dressing for lettuce salads, users report Seidel imparts a delightful flavor to *Cole Slaw, Bean, Potato, and Cream Macaroni Salads* as well as many other favorites. For a refreshing change, add a touch of *Seidel's Sweet Sour*. Sold in quarts and gallons. It's the honey that makes the difference you'll love!
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- Added wheat gluten gives higher protein content.

When ordering cereal . . . order Malt-o-Meal enriched wheat cereal

(MEETS FEDERAL SPECIFICATION FOR ENRICHED WHEAT CEREAL)

ogy, Philadelphia, will be our official representatives to the White House Conference on Aging to be held in Washington, D. C., January 9 to 12, 1961.

Obituaries

Anne M. W. Fitzpatrick. The A.D.A. office has been notified of the death on July 17 of Anne M. Waters Fitzpatrick, in Johnstown, Pennsylvania. Mrs. Fitzpatrick, who had been a member of the Association since 1940, had formerly been on the staff of Conemaugh Valley Memorial Hospital, Johnstown.

Florence Burdick Kell. The death on June 18 of Florence Burdick Kell has been reported to the A.D.A. office. Mrs. Kell, who had been a member of the Association for the last eleven years, was the only dietitian in the hospital in Nogales, Arizona.

News of Products and Services

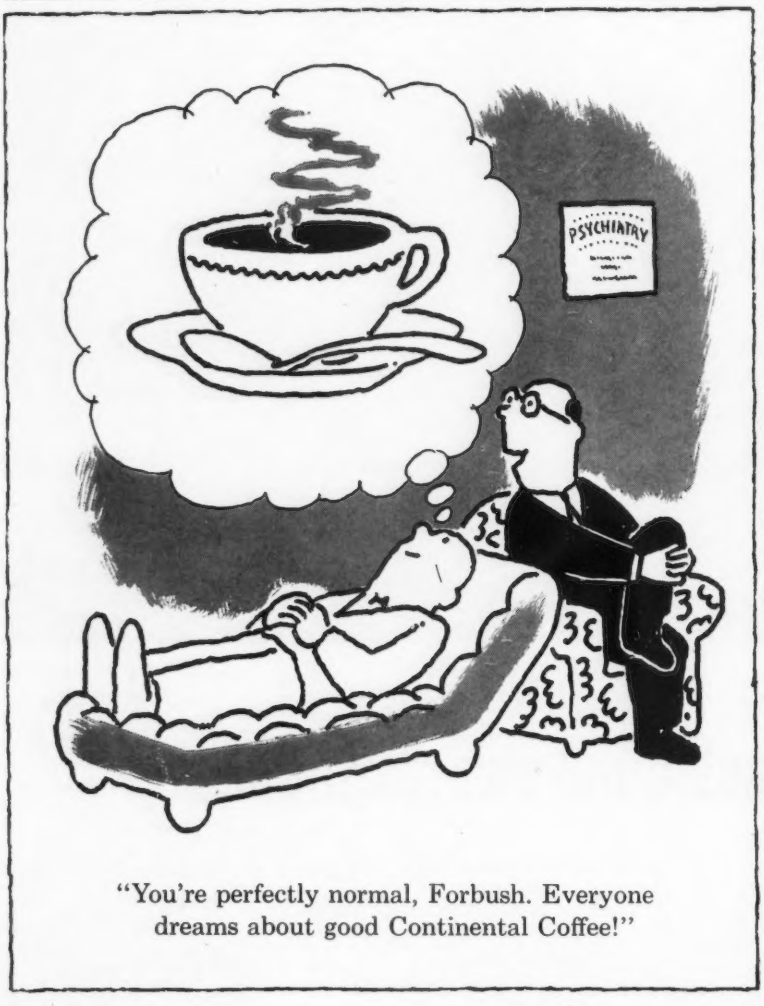
A new sixteen-page illustrated bulletin prepared expressly for the quantity feeding field is available from the *Institutional Department, American Spice Trade Association.* Detailed descriptions of fifty spices, herbs, and dehydrated vegetable seasonings, indicating forms in which they may be obtained and suggesting uses, are included. In the center fold, a chart shows actual quantities of spices needed to vary the seasoning of eighty well known dishes in 50-portion quantities. Three types of pizza sauces, barbecue sauces, nine seasonings for variations for hamburgers, and lamb curry are included in the recipes. A handy "Spice Equivalent Table," giving the number of teaspoons per ounce of each common spice, and sections on purchasing, storage, and handling of spices conclude the booklet.

How to coordinate the "Electra," mobile food conveyor, and Match-A-Tray service is shown in a ten-page folder from *Meals-on-Wheels System.* On a production line, manual or mechanical, each item of hot or cold food is segregated and identified during assembly with a "Match-A-Tray." At the end of the line, all trays are placed in the Electra and re-matched at the delivery point. A diagram of the trays with a picture of the Electra shows how this may be accomplished. Line drawings illustrate step-by-step procedure which can solve the problem of fast and accurate service with correct food temperature.

The basic square shape of "Delmar," a new pattern by *Syracuse China Corporation,* makes it possible to put the same number of pieces of china on a 10¼ by 15 in. tray as compared with a 16 by 22 in. tray using conventionally shaped round dishes. Storage problems are also relieved, and to conserve even more space, an extra small saucer is available. Turquoise and gold heart-shaped leaves and tiny red berries decorate the corners of the plates and the outside of the cups. The china has a hard, nonporous body; the glaze cannot be harmed with ordinary cutlery but stays bright and clear through many washings.

A "Store Modernization Check" list, prepared by Nelson A. Miller, Chief, Marketing Intelligence Division, U. S. Department of Commerce, for the Small Business Administration, is offered by *Continental Coffee Company.* The guide advises owners of small businesses to observe their equipment, layout, furniture, fixtures, and lights with the critical eye a competitor might use. If modernization is in order, the guide suggests the "whys and hows of modernization," including explanation of the broad concept. Another section of the eight-page brochure outlines harmonious changes for a major revision all at once or a program for changes over a period of time. Three and a half pages are devoted to charts which, when filled out, show the condition of individual items, the treatment needed, and the estimated cost.

Taste-free B-complex vitamins which can be chewed have been introduced by the Fine Chemicals Division



"You're perfectly normal, Forbush. Everyone dreams about good Continental Coffee!"

Write for free trial package

Continental Coffee COMPANY • CHICAGO

AMERICA'S LEADING COFFEE

For Restaurants, Hotels and Institutions

ROASTING PLANTS FROM COAST TO COAST

Why did it take SI-LITE longer than anyone else to produce a HIGH STYLE TRAY?

When the demand for high style trays arose we, like other manufacturers of trays, had the choice of adapting existing wallpaper or drapery patterns or creating new designs specifically for serving trays. The former course would have allowed us to come out with a high style line fairly quickly. The latter meant that some time would elapse before production could begin—but the product would be far superior.

Color and design affect people in hundreds of ways. The ancient Greeks gave color magical qualities and claimed that the judicious use of it would heal the sick. Today, the color psychologist is aware of color's enormous significance in hospitals, schools, restaurants. A green steak, no matter what its flavor or aroma, is something few of us would enjoy eating. Experience has shown that some colors contribute to diner enjoyment and others do not. As we saw it, our job was to tailor-make a group of trays to fit diners; not walls and windows.

There was another problem, too. We pride ourselves in producing a plastic tray that outlasts others. Both the ingredients we use and our manufacturing methods are different. But the process by which we mold our standard trays would not work as well for color trays. The decision was made to wait with these trays until they had the lasting power of our standard line.

But first things first—and we had to start with the designs. We needed a designer—a man thoroughly familiar with the special problems of the food equipment field—who could take the results of our extensive color and design research and translate them into service tray designs. We found such a man in Donald Marvine. He had, we discovered, designed products for several food service equipment manufacturers. He understood the unique complexities of tray design.

From scores of ideas, patterns, colors — all incorporating what we had learned about the relationship of color and design to dining—we were able to glean almost 200 tray designs. Our next job was to examine these to cull out the best few.

How? The best way is to go to the diners themselves. Using an elaborate preference test procedure, we were able to narrow the field down to several dozen. Further depth research resulted in our selection of fourteen colors and patterns. Hand painted samples were placed in a high traffic Chicago cafeteria for a final test. Next to these trays were competitive brands each as accessible as the other. With their choice free and open, which trays would customers take for themselves? The results were not surprising. Diners preferred the Si-Lite designed-for-dining trays by a margin of three and four to one!

At the same time production problems had to be licked. We were having trouble holding the colors that so much effort went into. A formula change along with a slight change in molding pressure solved that. The trays were strong and the colors true.

Finally, after almost three years of virtually constant experimentation, our new color trays were ready to market. We call them "Holiday Trays". They are superior to any other high style plastic tray available. Your Si-Lite representative will show them to you very soon.

Si-Lite, Inc.

2600 N. Pulaski Rd. Chicago 39, Ill.

of *Hoffmann-La Roche Inc.* A coating of rovicote encases the tablets. The product is identified by "No Can Chew," an egg-shaped Chinese gentleman, who dramatizes the Oriental egg-within-an-egg-within-an-egg toy and serves to illustrate that rovicote is a coating surrounding the tablets as the outer shell of a Chines egg surrounds the eggs inside. Chinese fortune cookies with the same theme are also being used in the promotion.

A new utility truck with interchangeable accessories making it adaptable for many institutional uses has been introduced by *Wear-Ever Aluminum, Inc.* Constructed of corrosion-resistant-heavy-duty aluminum, the truck has a ⅛-in. base providing strength without extra weight. Each wheel has a weight load of 250 lb. The wheels, two of which are swivel and two stationary, are 8 in. in diameter. A 1-in. handle fits snugly into place at either end and is fitted for lock bolts. Side and end panels, also available, slide smoothly into place to form a panel truck. The truck carries the approval of the National Sanitation Foundation.

A twenty-eight-page manual, "Building Maintenance" has been prepared by the Service Products Division of *Johnson's Wax* to serve as a reference guide to modern and efficient techniques of building maintenance. Five pages in folding chart form enumerate different types of floor material, their features in use, special cautions to be observed in their care, and recommended floor-care products. Step-by-step procedure in cleaning, finishing, and day-to-day maintenance is outlined. General cleaning, including washing walls and ceilings, windows, and furniture polishing, is discussed. Care of equipment and a few common-sense rules for safety are suggested. Maintenance problems, their cause, cure, and prevention are shown on a double-spread chart. Two pages deal with the accepted ways of eliminating common stains.

Pan-American Coffee Bureau reported that on the basis of a consumer survey of the population over ten years old, 73.6 per cent drink coffee compared with 50.5 per cent who drink milk, 39.2 per cent who drink fruit and vegetable juices, and 32.1 per cent who consume soft drinks. Findings have been published in a twelve-page booklet, "Coffee Drinking in the United States. Winter 1960." Coffee drinking has declined and the Bureau finds it is the result of a rise in the number of teen-agers and young adults who drink less coffee. There was also a decline in the percentage of heavy coffee drinkers, i.e., those consuming five or more cups daily. The coffee-break continues to be a big factor in the consumption picture. Vending machines now provide coffee to 19 per cent of inside workers compared with 15 per cent a year ago. Ten cents or less is the price paid for coffee by 90 per cent of the purchasers. Instant coffee also shared in the decline. Decaffeinated coffee enjoys its greatest popularity among older people, representing 7 per cent of coffee drunk by those sixty to sixty-nine years of age. Regionally it is most popular in the East. American homemakers are making a richer brew, using less water than formerly.

A ninety-six-page book, *Annual Coffee Statistics 1959*, has also been published by the *Pan-American Coffee Bureau* to provide a convenient source of recent information on world production, distribution, and consumption of coffee. The International Coffee Agreements are discussed as well as special bilateral agreements and foreign exchange rates. Price movements and markets are also included. Record green coffee imports by the U. S. were 15 per cent over 1958 but retail prices declined. Coffee growers suffered a loss of $360 million based on 1958 prices. Western Hemisphere producers supplied almost 87 per cent of U. S. purchases. African producers supplied about the same volume of coffee as in 1958, but their proportion of total imports declined from 14.7 to 12.9 per cent in 1959.

Economics Laboratory, Inc., announces a new, all-purpose lime solvent called "Lime-A-Way." Designed primarily for use in dish machines, steam tables, and other equipment where lime builds up as a result of hot

End Mixing!
Save Time!
LSM
LOW SODIUM
milk
with NEW
LOW SODIUM MILK
A Natural, Whole
LIQUID MILK
for restricted sodium diets
Pour LOW SODIUM MILK right from the can to patient's glass. Save time because there's no mixing. And each glass is assured the same natural consistency. LOW SODIUM MILK can be used whenever a sodium restricted diet is indicated.
Low Sodium Milk fortifies the nutritional value of any diet for it contains many of the proteins, vitamins and minerals so essential for good health and growth.
Each quart contains approximately 5% carbohydrates, 3.5% protein, 3.5% butterfat, 675 calories, AND LESS THAN 50MG. SODIUM.
Needs no refrigeration—
Can be shipped anywhere!
For more information about LOW SODIUM MILK write:
(east of Mississippi)
CANNED DAIRY PRODUCTS, INC.
800 Fulton Street • Pittsburgh 33, Pa.
Phone: FAirfax 1-7600
(west of Mississippi)
LOW SODIUM DAIRY PRODUCTS
346 Rose Avenue • Venice, California
Phone: Exbrook 6-3165

This Libbey Safedge is Guaranteed!

More than 30 years ago, Libbey perfected a unique fire process for safeguarding the rims of its fine glassware.

To prove that this now-famous "Safedge" was as good as claimed, Libbey backed it with the most dramatic guarantee in glass history:

"If any Safedge® glassware becomes chipped on the rim from *any cause whatsoever,* it will be replaced free of cost."

This offer, of course, still stands!

Durability is but one of the many reasons why Libbey Safedge glassware continues to be the choice of institutions across the country. The wide selection of patterns, full range of sizes, colorful cresting, immediate availability from one reliable source—all add up to why *Libbey* is your best buy.

For full information on how this durable and attractive glassware can serve *your* needs, see your Libbey Supply Dealer, or write Libbey Glass, Division of Owens-Illinois, Toledo 1, Ohio.

LIBBEY SAFEDGE GLASSWARE
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES • TOLEDO 1, OHIO

FOR VOLUME VEGETABLE CUTTING

in minutes!

LABOR-SAVING COST CONTROL

MODEL 101

Provides four different classifications of cuts... limitless variety. Makes strips 3/16" square, 7/16" square; flat slices—bias slices... variable from 1/64" to 1/4" thick. Automatically slices, slaws, rough and fine chops and shears French fries—juliennes.

specify QUALHEIM — there is no equal!

CRUSH 20 CANS or BOTTLES

in 1 minute!

LABOR-SAVING COST CONTROL

THE "Q" CAN & BOTTLE DISPOSAL

handles all sizes of cans up to 5 quarts and jugs up to 1 gallon. When empty they are simply dropped into a spring-type receptacle and are crushed to within 1/10 of their original size. Available in all stainless steel or gray enamel exterior.

See your franchised Qualheim dealer or write to the manufacturer.

QUALHEIM, Inc.
1200 Racine Street Racine, Wisconsin

water and steam, the product is a safe acid detergent which removes stain and food soil unaffected by, or slowly removed by alkaline detergents. Other uses include cleaning of coffee urns, drinking fountains, glassware, nursing bottles, stainless steel surfaces, restoring aluminum surfaces, and whitening cement or tile. It will not harm skin, nylon, metal, china, or glassware surfaces and returns luster to all surfaces.

Narrow strips of a special pressure-sensitive material which bonds to plastic, aluminum, or steel trays without special tools prevent skidding even of a wet tray. The "Grip Tite" strips are offered by *Silite, Inc.* One package will skid-proof two round trays or one 14 by 18 in. service tray.

Created to increase volume storage, feeding, and serving, a new group of Victory V-line floor loader refrigerators, freezers, and warmers has been introduced by *Victory Metal Mfg. Corp.* These new, all-stainless remote units will accommodate almost any size utility rack and are available in one-, two-, three-, and four-section models, either standard or pass-through. Racks roll easily into the units because special adjustable guide bars position them as they enter. All refrigerator and freezer models have full-length mullion coils. Specially designed door hinges elevate the doors as they open, eliminating gasket wear on the floor and assuring locking and sealing when the door is closed.

Legion Utensils Co., Inc. has purchased rights to manufacture and distribute Multi-Egg Fryer, a patented item. Early production is scheduled. Each fryer contains twelve rings for preparing twenty-four eggs. With sixteen fryers on eight standard grills, 384 eggs can be prepared in 2 min. at 325° F.

An electronically controlled feeder and a new type liquid detergent form the basis of the "Klenzmation" automated dishwashing system recently introduced by *Klenzade Products, Inc.* The controller is connected to a "sensing" probe in the dish machine tank and actuates a solenoid-operated injector when the detergent concentration in the wash water falls below a predetermined level. Detergent is automatically fed from a 5-gal. polyethylene container. Throughout the operating period, the wash tank is charged without manual measuring, transfer, or handling of detergent. Chlorine content peptizes proteins and oxidizes stains.

The Admiral 120-5, improved single tank automatic conveyor dishwashing machine designed by *Insinger Machine Co.*, features welded cove and radius hood construction with an easy-to-clean, stainless tank. The unit will service up to four hundred diners a meal. The interior includes stainless steel suction and discharge lines ,tracks, scrap screens, spacers, and spray pipes. Easy removal of parts simplifies cleaning.

National Fisheries Institute will promote a Fish 'n Seafood Parade, October 17 to 23, and a 1961 Lenten promotion, February 15 to April 1. Shrimp has a promotion of its own; Shrimp Fiesta lasts through the month of October. Tips on how to encourage consumption of this low-cost, high-protein food include offering small portions of fish as an appetizer. Crabmeat salad and fried soft shell crabs may be featured in this way. Well chosen relishes, sauces, or condiments will point up flavor or add contrasting texture. An assortment of spicy, sweet, or crunchy accompaniments for curry of shrimp Madras are suggested. One unusual way of serving fish is suggested by a twin fishwich made by placing 3 oz. breaded fish portions, lettuce, and tartar on a double-deck bun. Estimated cost is 25 cents. Cream of mushroom soup, undiluted, when heated and poured over fish adds piquancy. With the slogan "Every Day a Fish Day," recipes for trout, ocean perch aflame, shrimp Newbury, and curry of shrimp Madras point up the variations possible.

A new reference guide for 1960-1961, *Commercial Electric Kitchen Equipment Fact Book*, has been published by *Food Service Magazine* and is available at a cost of one dollar. This catalogue illustrates and describes 445 electric kitchen devices in twenty-one major categories, including ranges, ovens, coffee makers, steam cookers, refrigeration equip-

Embroidered cloth emblems, green on white, bearing the seal of The American Dietetic Association, to be worn on the blouse of the uniform, are available to members and to dietetic interns at the following prices:

Seal 30c

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(*) Please specify *Dietitian* or *Dietetic Intern*

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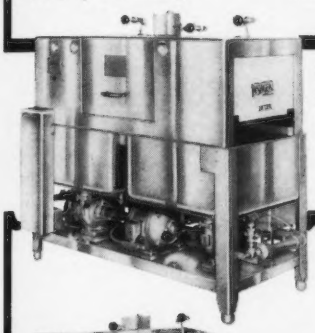
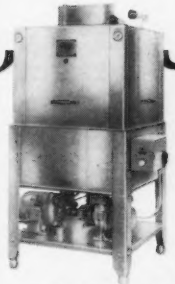
NEW INSINGER DISHWASHING MACHINES

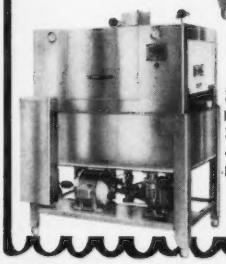
gives you exclusive features!

- 14 gauge deep drawn cove corner tank construction
- All welded hood with cove and radius corners
- Die-formed doors — rigid strength design
- All parts easily removable for simple cleaning
- Non-ferrous nickel alloy castings resist the corrosive effects of strong detergents and repel foreign rust deposits
- Pump is designed for rugged service and simplicity of maintenance



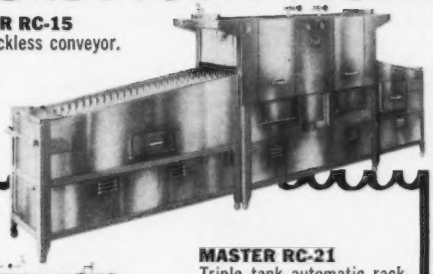
SPEEDER IV
Double tank automatic conveyor. Service — 300 to 600 persons per meal.



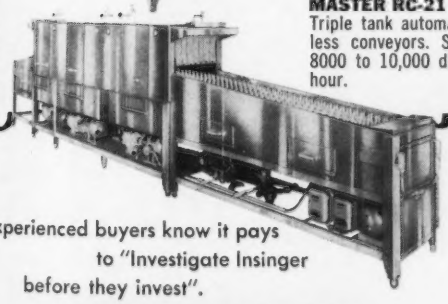


ADMIRAL 120-5
Single tank automatic conveyor. Service—220 to 400 persons per meal.

COMMODORE 15
Single tank door type. Service—150 to 250 persons per meal.



NEW CLIPPER RC-15
Double tank rackless conveyor. Service 6000 to 8000 dishes per hour.



MASTER RC-21
Triple tank automatic rackless conveyors. Service — 8000 to 10,000 dishes per hour.

Experienced buyers know it pays to "Investigate Insinger before they invest".

INSINGER MACHINE COMPANY
6245 STATE ROAD • PHILADELPHIA 35, PA.

NEW CB-4 GALLON-SIZE WARING BLENDOR®

- *SPEEDS UP MASS FOOD PREPARATION*
- *JACK-OF-ALL-BLENDING JOBS*
- *SOLVES SPECIAL MIXING PROBLEMS*
- *NEW, MORE POWERFUL, COOL-RUNNING MOTOR*
- *ONE YEAR WARRANTY*

The new Waring CB-4 does your mixing and blending jobs better than ever. Now, regardless of special demands, the CB-4 is able to take care of virtually any problem requiring mass preparation of special diet foods. Tube feeding diet problems, for example, disappear because patients can enjoy everything from steak to ice cream when blended to drinkable consistency. Then, for such jobs as reconstituting milk products, liquefying solids, preparing gelatins or blending pharmaceuticals and vitamins—just load the gallon-size Blendor, push a button, and get marvelous results in a matter of seconds every time.

The container is stainless steel with easy-pour handle, clamp-on cover, and sealing gasket; stainless steel blades are removable for cleaning. Lifetime-lubricated, heavy-duty, 15 amp motor operates on 115 volts, 60 cycles, single phase, AC only. Push-button speed selectors for 19,000—17,000—14,000 RPM.

WHATEVER YOUR BLENDING PROBLEM, call on Waring engineers to help you find a practical answer.

NOW AVAILABLE SEPARATELY—855C ADAPTER which permits blending smaller quantities in a Waring 37½-oz. stainless steel container (shown) or Pyrex container. Also Model SS-510 stainless steel container for use with any standard Waring Blendor Base.

WARING PRODUCTS CORPORATION
25 West 43rd Street, New York 36, N. Y.
Subsidiary of Dynamics Corporation of America

MAIL NOW FOR FAST COOPERATION

GENTLEMEN:

☐ I want advice on a blending problem.

Please send full details about ☐ Gallon-Size Blendor CB-4, ☐ 37½-oz. stainless steel container SS-510 for standard Waring Blendor, ☐ 855C Adapter.

NAME _____

INSTITUTION _____

ADDRESS _____

CITY/ZONE _____ STATE _____

HOT FOOD
STAYS SAFE

MODEL JPT-5-2

IN A
Thermotainer®
electric
FOOD WARMER

Health authorities agree that food bacteria multiply dangerously when prepared food is improperly stored. To control this problem they recommend that food be held below 40°F. or above 140°F.

Because Thermotainer can keep hot food at safe temperatures it assures vital health protection as well as important food preparation and serving advantages. Only Thermotainer's compartmented construction keeps food piping hot and deliciously *fresh* for hours after it has been prepared.

Be sure you investigate all these advantages before you buy a food warmer. Then, you will understand why Thermotainer's years of leadership have made it the world's finest food warmer.

- **"Channeled Heat" assures uniform heat distribution**
- **Full-range thermostat (150°- 300°F.)**
- **NSF and UL approved**
- **Humidity control**
- **Stainless steel throughout**
- **Flexible compartment capacity**
- **No steam or hot water used — food is held in its *natural* moisture**
- **More than 77 models from which to choose.**

Write for complete catalog of food warming equipment.

Sold only through authorized dealers.

FRANKLIN PRODUCTS CORP.
400 W. Madison Street • Chicago 6, Illinois

ment, and waste disposals. The features of each unit, its production or capacity, and the electrical data necessary for installation are given. A five-page directory lists ninety-seven manufacturers producing the equipment. A diagram of a typical all-electric kitchen and a table on wiring capacity are included.

Three booklets are available from *Campbell Soup Company.* "Bright Ideas with Pork & Beans" proves the versatility of these protein rich foods. "Lunch Time Treats" is designed to put nutrition into lunches at home or carried. Recipes for "Special Treat Lunches . . . for Youngsters" and "Souper" lunches are given. Hot soup in a vacuum bottle is advised. Two pages of suggestions are arranged in columns from which an item selected from each column will supply a good lunch box menu. Hints for week-end lunches and little extras are given in the recipes. "Favorite Recipes for Groups. Soups and Main Dishes," a compilation of recipes using soup-sauces, is the third booklet. Each recipe is set up to help in planning and purchasing for groups of ten, twenty, and fifty persons. Sippable or sturdy soups and chowder recipes are included.

A new electric grill cleaner has been announced by *RotoMagic Corporation.* The grill cleaner plugs into any electric outlet, has four counter-rotating abrasive wheels that clean any grill speedily, and is designed to clean while the grill is at cooking temperature. It will leave no ridges or hollows to trap grease or form hot spots. The plastic housing is contour shaped to provide a firm hand grip. A safety control switch is placed on the cord to occupy the operator's other hand, thus preventing the hazard of accidental burns.

A new, heavy-duty, counter-top electric roast oven designed for roasting turkeys and roasts and for general baking has been introduced by *Bakers Pride Oven Co., Inc.* Two 25-lb. turkeys may be roasted simultaneously or eight 10-in. pies. The oven is equipped with a multiple-level removable shelf, automatic double-pole thermostat, and a 60-min. bell timer. It operates on 208 or 220 volts A.C., 2900 watts. Two models are available, one with an all-stainless steel front and body finished in bakertone gray, or the other with an all-stainless steel exterior.

A new, quite compact, hydraulic can- and bottle-crushing machine is available from *Herlex Sales Company.* The machine is quiet enough to use adjacent to serving and work areas. It crushes cans pancake flat and pulverizes bottles. The crushed cans take up only one-eighth and the pulverized bottles only one-fourteenth as much space as otherwise required. The machine is completely hydraulic with no grinders or rollers. It is mobile, rolling easily to location and out of the way when not in use. No installation cost is necessary.

FRANK A. HAMILTON, Business Manager
New Paltz Central School
New Paltz, New York

"We Cut Our Cafeteria Losses from $11,000 to Practically Nothing with Paper Service"

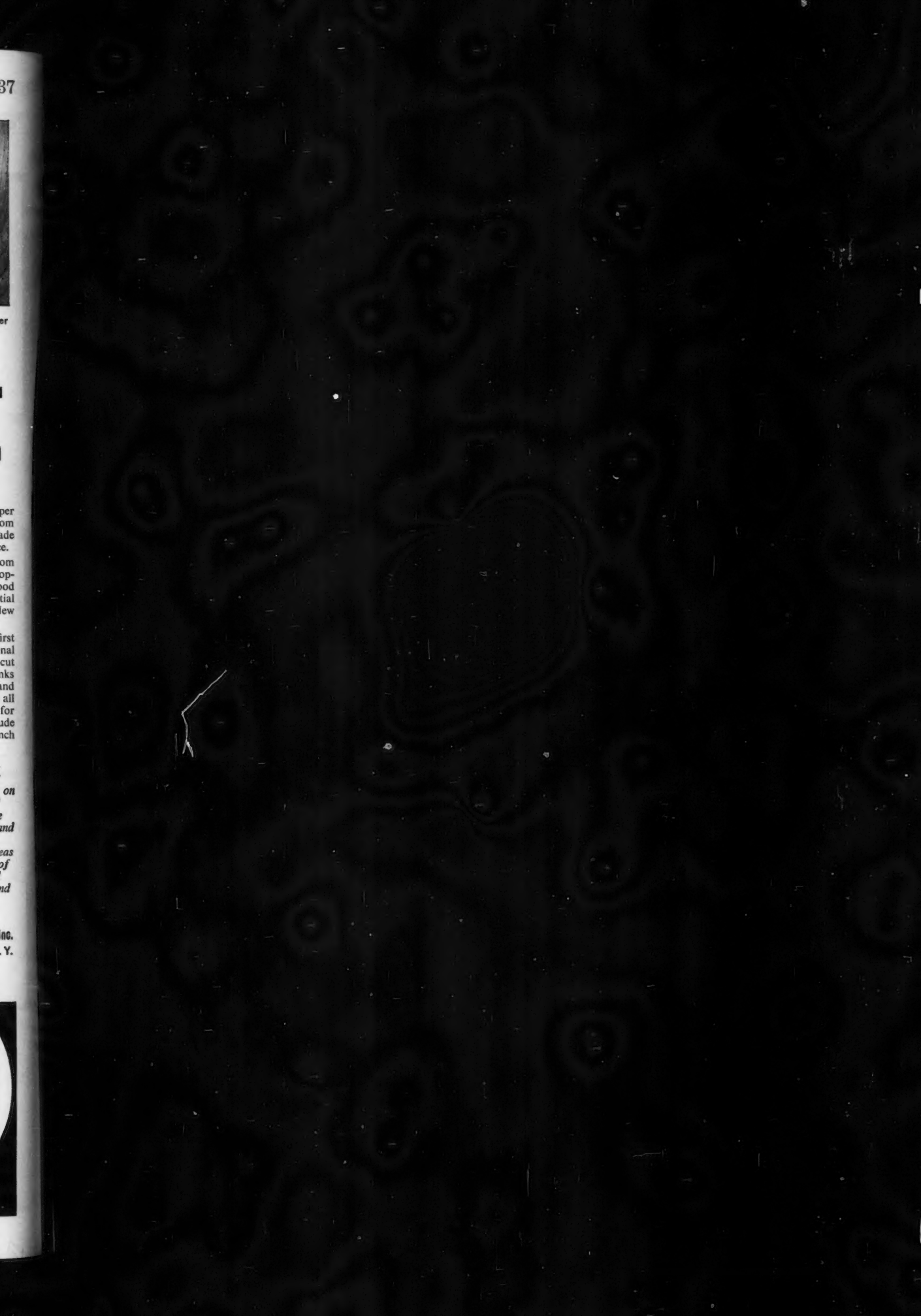
Last fall, Mr. Hamilton started paper food service in the school lunchroom in New Paltz, New York, and has made careful daily cost records ever since.

While no public school lunchroom is expected to be a profit-making proposition for the community, paper food service is bringing about a substantial change in operational costs at the New Paltz school.

From an $11,000 loss in the first year of operation, when conventional service was used, the cafeteria has cut its deficit to practically nothing, thanks to the efficiency of paper cups and containers. This accomplishment is all the more remarkable because now, for the first time, the cost figures include the salaries of managerial and lunch personnel.

SEND 25¢ FOR FACTFUL BOOK

Sixty pages of helpful information on all phases of food service. Complete with cost studies and case histories of money-saving ideas from hundreds of restaurants and institutions. Send 25¢ in coin to:

Paper Cup and Container Institute, Inc.
250 Park Avenue, New York 17, N. Y.

PAPER
the personal
food service